

V. 4 #16
JL 17, 1901
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ECHOES OF THE PARIS-BERLIN RACE

Out of 109 starters in the Paris-Berlin road race 45 finished. Twenty-three were of the heavy vehicle class, 12 rode light vehicles, six voitures and four motorcycles.

In the first class the race was a splendid fight between the two big firms, Panhard & Levassor and Mors. The latter had Fournier, who won the event, while 2nd, 3rd, 5th, 6th and 7th were all on Panhards. The 4th and 8th were on Mors machines.

Thirty-nine of the finishing automobiles had French Michelin tires. Four had German Continental tires and the two others Belgian tires.

One of the most remarkable achievements and one which is really more talked about than Fournier's ride, is the splendid showing made by L. Renault on a Renault voiturette weighing only 400 kilos and having a single motor, which took only about three hours more than Fournier, and easily beat him over the last day's journey. It was considered, by all, the most remarkable achievement yet accomplished by such a vehicle and will have a good commercial effect on this class.

A German paper reports that on the

arrival of Fournier at Berlin, M. Mors, the man who made the Mors vehicle, on which the Frenchman won the race, shook hands with him, almost with tears, and said: "Good boy; the voiture is yours, and also 50,000 francs." All told, it is reported that Fournier will net at least 75,000 francs, beside the art prizes.

The times, it will be noted, showed a remarkably good performance by a De Dion tricycle. It was beaten only by six of the racing machines and was well ahead of all in classes B and C. The average for machines of the motorcycle class was excellent.

The owners of all vehicles who took part in the race had to deposit 12 per cent of the value with the French Automobile Club, as a guarantee that the vehicle would be returned to France. The man who had charge of this reports that he received 1,300,000 francs. The smallest declaration was for a motorcycle, 900 francs, and the biggest, 40,000 francs.

Writing from Berlin, Paul Meyan, the automobile authority of the Paris Figaro, says:

After yesterday's event, far away from the ovations and yells of the enthusiastic crowd, I have been able to talk for



PREPARING FOR THE START AT CHAMPIGNY.

FROM PARIS TO BERLIN.



THE FAMILY CARRIAGE OF THE BARON DE ZUYLEN.

awhile with some of the important German manufacturers and ask their opinion about the memorable event. They, just like the crowd, are amazed at the marvelous endurance of our vehicles and their speed. This remark, however, concerns

the race only, for they do not find in the automobiles the practical results which we may think are a fact. The German minister of commerce said, in his speech at the Kaiserhof, that a race may be an indispensable factor in progress, because



ARRIVAL OF GIRARDOT AT COULOMMIERS.

FROM PARIS TO BERLIN.

it gives a chance for the makers to surpass each other by making something better and finding improvements, but Germany, whose roads are not fit for sporting events, wants more practical results. "What expensive and difficult vehicles your racing machines are," said some people. "It is not toward that end that our efforts must be directed, but to the really useful transportation vehicle."

The Germans reason like the English; they are more practical than we are. All depends on the character of nations. A Frenchman will get crazy over a victory, which may be forgotten the following day. The German is more calm. He will profit by the lesson; he will attain the ob-



After the Battle. Fournier—busy.

have been suppressed, that Germany will be glad to have some races and that our makers will come over here and compete. Would they not do much better work in trying to find the means to modify speed in such manner as to render the events possible in their own country?

In Berlin the automobilists were invited to visit the factory of Ludwig Loewe & Co., makers of all kinds of tools for the manufacture of automobiles. The factory itself is equipped with American machinery. It employs 3,000 men, has 2,500 horsepower engines and has room for the keeping of 3,000 vehicles.



Renault's Arrival at Berlin.

ject slowly but surely, owing to his method of reasoning and stubbornness, which he shows in everything he does.

It is the opinion of very serious people which I herewith reproduce. Our manufacturers will do well in taking them into consideration. They know and recognize that their vehicles are really too fast, and that their patrons and customers will refuse to adhere to their fast vehicles.

The noise this big race has made in the parliamentary world has reached this side. There is a rumor that the races



A Motor-Cycle Tourist.

FROM PARIS TO BERLIN.

Among those who covered the entire course was Madame du Gast, who finished in 26:24:11 on a Panhard. The complete classification table, giving the time for each of the three classes and the total time, is here given:

CLASS A.—HEAVY VEHICLES.

No.	Operator.	Vehicle.	First day.	Second day.	Third day.	Total time.
1.	Fournier.	Mors	6:28:22	5:21:00	4:16:38	16:06:00
2.	Girardot.	Panhard et Lev	6:34:29	5:56:00	4:41:27	17:01:00
3.	R. De Knyff.	—	7:22:23	5:58:00	4:34:00	17:04:00
4.	Brasier.	Mors	7:01:19 2	6:26:08	3:39:44 4	17:24:00
5.	H. Farman.	Panhard et Lev	6:47:19 2	8:03:35	3:01:31	18:01:00
6.	Axt.	—	8:30:24 3	6:19:11 4	4:13:58 2	18:51:00
7.	Charron.	—	7:08:37 1	6:32:18	4:29:01	19:26:00
8.	Hourgières.	Mors	8:07:34 1	6:48:34 1	4:47:00	19:43:08 2
9.	P. Chauhard.	Panhard et Lev	9:07:38	6:07:38 2	5:12:50	19:49:05
10.	Jarrot.	—	7:28:14	7:48:12	4:49:55	20:06:21
11.	Heath.	—	7:18:39 3	7:38:20 3	5:34:23 3	20:24:00
12.	Voigt.	—	7:15:24 3	6:43:55 1	5:30:05 1	20:31:00
13.	Leys.	—	7:14:57 3	8:11:18	6:07:45 2	21:34:00
14.	Van den Heyden.	Mors	8:31:36 4	7:26:26	6:20:20	22:18:21 4
15.	Werner.	Mercedes	9:08:37 1	7:59:58 1	5:22:43	22:31:18
16.	Clement.	Panhard et Lev	8:07:22 3	9:23:41	5:25:37	22:56:03 3
17.	A. Lemaitre.	Mercedes	7:25:03	8:14:23	7:38:50	23:18:16
18.	Rolls.	Mors	7:22:26	9:51:21	7:06:40	24:18:27
19.	Mme. du Gast.	Panhard et Lev	11:01:12 1	8:27:09	6:55:50	26:24:11
20.	Brillie.	Societe Nanceenee	11:01:12 3	8:54:35	9:08:50	28:59:37
21.	J. De Crawhez.	Pieper	14:32:23	8:07:47	7:52:10	30:32:19
22.	Haban.	Nesseldorf	11:42:13	10:49:18	8:38:10	31:19:41
23.	De Turckheim.	De Dietrich	11:04:51	—	7:47:00	—

CLASS B.—LIGHT VEHICLES.

1.	Giraud.	Panhard et Lev	8:15:14	6:18:25	4:59:21	19:33:00
2.	G. Berteaux.	—	7:51:20	7:11:48	8:06:25	23:13:33
3.	Sincholle.	Darracq	9:16:11	8:17:45	5:43:35	23:17:31
4.	Edmond.	—	8:40:16	9:07:43	5:51:40	23:39:39
5.	Teste.	Panhard et Lev	8:38:02	8:08:43	6:54:00	23:40:45
6.	Kraentler.	Peugeot	10:33:08	8:34:33	6:20:25	26:29:01
7.	Roland.	Gobron	10:09:16	8:08:33	6:28:10	26:35:59
8.	Gondolin.	Panhard et Lev	10:28:43	8:28:50	6:36:10	26:48:44
9.	Mercy.	Gladiator	9:18:10	7:02:00	9:31:00	26:46:10
10.	Dernier.	Gobron	10:08:13	9:17:27	8:44:00	28:09:40
11.	Collins.	Sirene	13:50:22	8:23:43	12:01:00	34:14:45 2
12.	Turgan.	—	13:38:53	—	8:20:00	—

CLASS C.—VOITURETTES.

1.	L. Renault.	Renault freres	7:49:00	7:11:05	4:12:20	19:16:25
2.	Grus.	—	8:57:00	7:07:26	6:27:50	22:32:16
3.	Oury.	—	10:01:23 2	8:28:52	7:36:00	26:57:15
4.	Ludovic Morin.	Corre	10:34:32	12:02:02	6:43:27	29:20:01
5.	Merville.	Renault freres	9:49:45 2	?	8:30:48	—
6.	Delisile.	Voiturette	12:28:07	?	8:30:00	—

CLASS D.—MOTOR CYCLES.

1.	Osmont.	De Dion-Bouton	7:41:44	6:40:41 4	4:37:24 1	18:59:50
2.	Bardeau.	—	8:43:48	7:15:11	5:50:26	21:49:24
3.	Cormier.	—	8:27:25	8:01:40	6:32:15	23:01:20
4.	Bardin.	—	7:57:54	8:37:55	6:34:10	23:10:44



GERMAN SOLDIERS KEEPING THE COURSE CLEAR.

CONSTRUCTION OF A BICYCLE MOTOR

PART FOUR.

Figure 12 shows the pinion which operates the exhaust and ignition mechanism, through the medium of the gear shown in figure 13. The pinion should be made of a high grade tool steel and is to be hardened after being finished and the key way and teeth cut. The pinion is securely held in place upon the end of the fly wheel shaft by means of the lock nut shown in figure 6. The gear is of phosphor bronze and requires a pattern.

The flange shown upon the hub of the gear at the right side of the drawing is to prevent oil from splashing or getting out of the gear box into the igni-

tion case, which, in most motors of this type, is a source of trouble and annoyance.

Both pinion and gear are cut No. 16 diametral pitch and have 20 and 40 teeth respectively. A $\frac{1}{4}$ -20 tapped hole is shown in the hub of the gear, between the end flange and the gear proper. This should be drilled with proper size tapping drill, but not tapped until after the gear is fitted in place upon the key in the exhaust cam sleeve. Then the point of the tapping drill should be run into the sleeve about $1\frac{1}{16}$ of an inch, and a $\frac{1}{4}$ -20 headless cup-point set screw used to hold the gear in place upon the

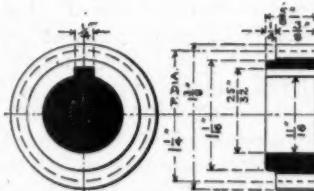


FIG. 12 PINION
20 teeth, No. 16 diametral pitch—One, tool steel.

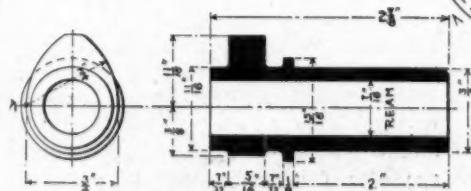


FIG. 14 EXHAUST CAM AND SLEEVE
One, tool steel

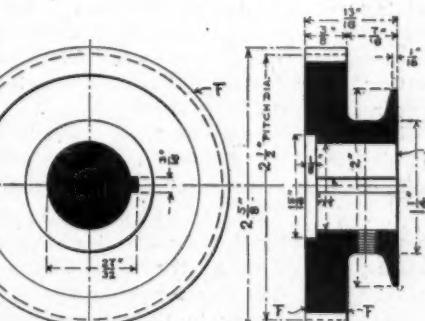
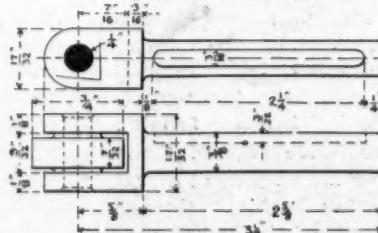


FIG. 13 GEAR.
40 teeth, No. 16 diametral pitch—One, phosphor bronze.

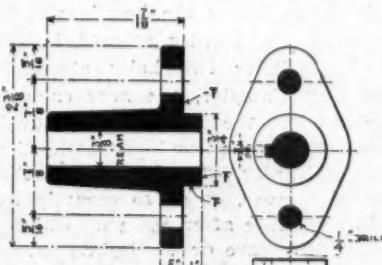
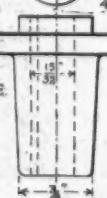


FIG. 17 PLUNGER-ROD GUIDE
One, phosphor bronze



CONSTRUCTION OF A BICYCLE MOTOR.

sleeve, after tapping out the hole for the same.

Figure 14 shows the exhaust cam and sleeve, the outer end of which carries the ignition operating cam. This is of annealed tool steel and should be finished carefully according to the figures shown in the drawing. The round part of the sleeve upon each side of the cam is turned slightly smaller than the small diameter of the cam, so as to enable the cam to be finished with much less work than if left of uniform size at the points, only the 5-16 portion will have to be shaped off at this point, instead of the full width back of the collar, which would be the case if this part of the sleeve were left of uniform diameter with the small part of the cam.

Figure 15 is the exhaust cam stud and washer. This stud should be made of 1-inch hexagon steel, and finished according to dimensions given in the drawing. The washer can be cut off of a piece of $\frac{3}{4}$ -inch round steel, by simply holding same in the lathe chuck, turning down the outside to 11-16 of an inch, then drilling out the $\frac{3}{4}$ -inch hole and cutting off, after rounding the outside corner as shown.

The plunger rod and cam roller are plainly shown in figure 16. The plunger rod should be made of annealed tool steel, and the roller of tool steel, and it should be hardened after finishing before putting in place in the jaws of the plunger rod, and riveting over the pin as shown. The key in the plunger rod stem is of 3-16-inch square steel, and should be nicely fitted in place in the stem. After fitting the key in place, it should be permanently secured in position, by drilling two holes about 1-16 of an inch diameter, one near each end of the key, the holes to be drilled through key into stem in opposite directions, outwardly, at an angle of about 15 or 20 degrees, so as to securely hold the key in place after the pins which go in these holes are drawn tightly in.

The outer ends of the holes for the cam roller should be slightly countersunk as shown, and the pin made about 1-32 of an inch longer than proper size, so as to allow for riveting over and finishing after the roller is put in place.

Figure 17 shows the plunger rod

guide. This is of phosphor bronze and a neat pattern should be made for it.

The key way in the 3-8 hole in the plunger rod guide stem will have to be cut by means of a drift. For this purpose a piece of $\frac{3}{8}$ -inch cold drawn steel should be used, and a key way cut in it, 3-16 of an inch wide and deep, and a cutting tool made from a piece of tool steel, 3-16 of an inch square. This should be made slightly taper on the top side, so as to allow of easy passage in the key way while cutting. The large end of the cutting tool should be properly hardened before using. Some strips of very thin brass sheet should be used to put in the slot in the tool guide, after each cut, so as to feed the tool up to its work. One end of each piece should be bent over at right angles, so as to prevent the cutter from dragging them through the slot in the tool guide. With a small hammer and a properly made tool or cutter or drift, the key way can be quickly and nicely made.

The ignition operating cam is shown in figure 18. It is made of tool steel and the projecting seat or lug, which is $\frac{1}{4}$ of an inch square, requires to be hardened after the cam is finished. Two tapped holes for $\frac{1}{4}$ -20 headless cup-point set screws are shown. These should be drilled, but not tapped, until the cam is properly located in position on the exhaust cam sleeve, after the motor is assembled.

The back or rear portion of the ignition case is shown in figure 19. It is of aluminum and requires a pattern, which should be preferably made of hardwood, on account of the small ribs and cored slots. Fiber or hard rubber are also frequently used for this portion of the ignition case, but they are not to be recommended, on account of their extreme liability to warp or crack, and also to become saturated with oil and get out of shape from this cause.

Two small lugs are located, one on each side near the top of the portion of the ignition case forming part of the rib or inside edge of the same. These are for the purpose of carrying the small insulating bushings through which the battery and induction coil connections pass, to the binding posts on the outer sides of these lugs. These lugs stand

CONSTRUCTION OF A BICYCLE MOTOR.

at right angles to the body or main portion of the part shown.

Figure 20 shows the ignition case cover. This is also of aluminum and requires a pattern. Two slots are shown in the upper portion of the cover. These should be in the pattern, so as to save the work of cutting them out afterward in the casting. They are to allow the cover to be removed for inspection purposes, without interfering with the battery and induction coil terminal binding posts. Finish should be allowed on the

pattern for the back or rear portion of the ignition case, as shown in the drawing. The pattern for the cover portion of the ignition case can best be made solid, and a core box used to make the inside with. In this manner no draft will be needed for the inside, and the metal can be made as thin as possible.

The next article will describe and show in detail the ignition operating device, the proper method of insulating the same, and a wiring diagram, showing arrangement of batteries, induction coil, contacts and sparking plug.



FIG. 15. EXHAUST CAM STUD
One, steel.

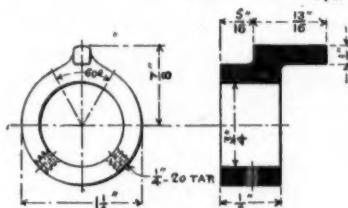


FIG. 18 IGNITION CAM
One, tool steel.

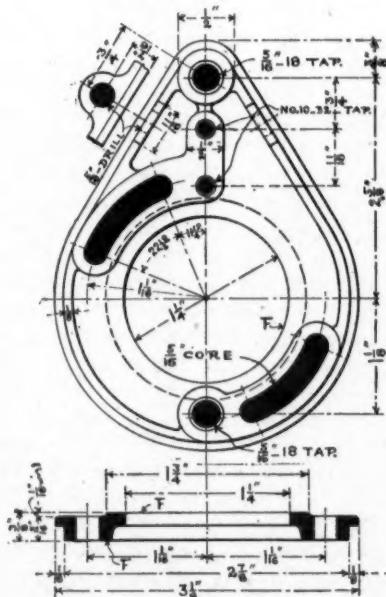


FIG. 19. BACK OF IGNITION CASE
One, aluminum.

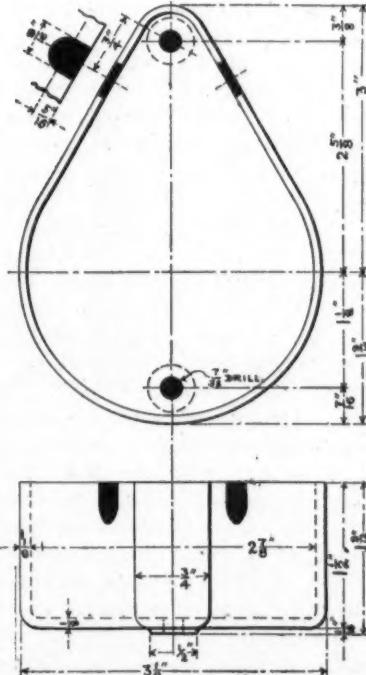
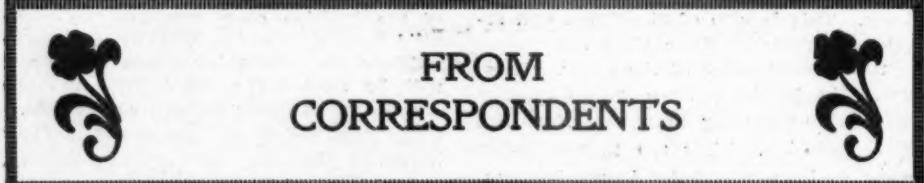


FIG. 20. IGNITION CASE COVER.
One, aluminum.



FROM CORRESPONDENTS

Pittsburg, Pa., July 10.—To the Editor:—We herewith enclose a description of an all-night run that we made over western Pennsylvania roads, which is certainly a record considering the time it was made in and the way the motors ran.

We left the Automobile Palace, Baum and Beatty streets, at 10:25 p. m. and arrived at De Haven at 11:15; arrived at the top of Tallaycave Hill at 11:55, and made a three-minute stop. We put one gallon of water in each machine. We arrived at Gladesmills at 12:41, but made no stop. Five miles from Butler we stopped to load gas lamps and oil motors and arrived at Butler at 1:55 a. m.

We stopped at Butler 25 minutes and put two gallons of gasoline in each machine and one gallon of water and oiled motors. We left at 2:20, arrived at Gladesmills at 3:35 and went on through to Bakerstown, where we arrived at 4:06. Four miles out of Bakerstown we made a 10-minute stop to oil motors and tighten nut on the muffler pipe. We returned to De Haven at 4:58, arrived at the Automobile Palace at 5:44, and stopped there three minutes and put two gallons of gasoline and one and one-half gallons of water in each machine.

We left at 5:47 for East Pittsburg, arriving at 6:54; then made the return trip to the Automobile Palace, arriving at 7:15, making a total of 102 miles.

Actual running times were: Pittsburg to Butler, 5 h. 4 m.; Butler to Pittsburg, 5 h. 14 m.; Pittsburg to Bakerstown, 1 h. 27 m.; Bakerstown to Pittsburg, 1 h. 28 m.; Pittsburg to East Pittsburg, 47 m.; East Pittsburg to Pittsburg, 41 m.

Actual running time of entire trip, 7 h. 46 m. Actual time machine was stopped, 1 h. 4 m.

Amount of gasoline used in each ma-

chine, 6 gallons, an average of 17 miles per gallon.

Amount of water used in each machine, 4½ gallons, or 22 2-3 miles per gallon.

Amount of lubricating oil, used only in the motors, one pint per machine.

The machines used were two De Dion-Bouton Motorettes, 5 horsepower, numbers 92 and 127. These machines were both entirely new and had only been run a few miles. The running was very dangerous at times for the reason that it was dark during the first part of the trip, the fog was heavy and at some places we could not see 20 feet ahead of us. At times our machines went as fast as 25 miles an hour and down some of the grades at 50 miles an hour. A great many of the hills were taken on the high speed gear.

The men who took the run were A. L. Banker, operator, accompanied by T. Hoey, on No. 92 machine, and Ed. C. Haus, operator, accompanied by Lou Crist, on No. 127 machine.

Neither of the motors stopped during the entire trip. The machines were only stopped to put in water and lubricating oil. It was more of a test run than a complete non-stop run. What we wanted to see was if we could run these two De Dion-Bouton motors without a stop, and we succeeded. The machines did not give a particle of trouble outside of one exhaust pipe nut which came loose. The motors never seemed to miss an explosion from the time we left our Automobile Palace, and at no time was it impossible for us to lay our hands on the water jacketed heads for a few seconds. Anyone who has ever been over Pennsylvania roads will know what a remarkable trip it was.

We might add that we have sold 40 De Dion-Bouton Motorettes, 10 Mobiles, al-

FROM CORRESPONDENTS.

though we have only had that machine about 30 days; one Orient runabout, one Toledo steam, which has only been here two days, and two Peerless De Dion Motorettes, made in Cleveland. We have 40 machines coming through the De Dion works, including delivery wagons, Brooklyn types, Paris tonneaus, etc.; five machines from the Peerless Mfg. Co., and four from the Mobile company.

We are making arrangements to increase our storage capacity, and will have an immense building put alongside of our present new building. It will be 40 ft. wide, 115 ft. long and two stories high.
—Bunker Bros. Cycle Co.

MS.

Engines, Burners and Generators

Dayton, Ohio, July 10.—To the Editor.—We believe the difficulties experienced in keeping up steam on a windy day is due to faulty construction of burners, and especially the faulty manner in which burners are attached to boilers. We believe these difficulties are entirely overcome in our new burner, engravings of which we are now having made, and which we will be glad to send to you.

As to Dr. Windmuller's manner of attaching the engine, we would state that, in our opinion, the advantage in connection with attaching the engine vertically as is ordinarily done is far greater than is the case when the engine is attached horizontally. The doctor would strike snags that he does not see if he attached the engine as he proposes, which we do not care to discuss.

We have been experimenting for quite a long time on our generator and burner and the results are satisfactory. We believe there is no other question of such interest to users of steam carriages as that of the burner and its accessories.—Yours, etc., The Dayton Motor Vehicle Co., G. N. Bierce.

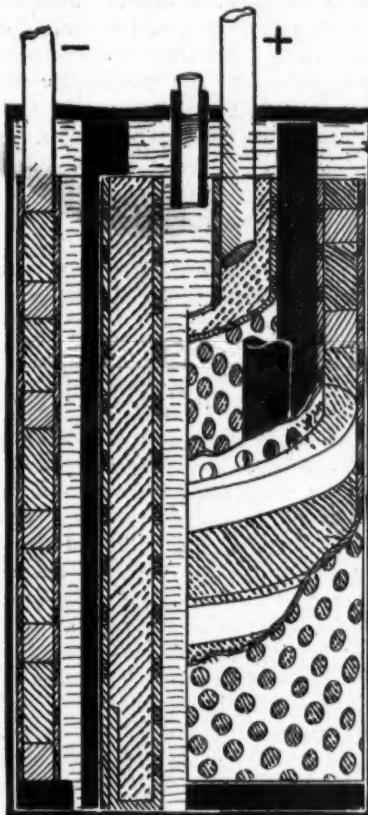
MS.

Storage Battery Economy

Chicago, July 15.—To the Editor:—While so much is being said in regard to the primary batteries now in the market, it is worth while to consider the question of a storage battery for the purpose of gas engine ignition.

The chief objection to the primary cell

and particularly to the small dry cells now commonly used in groups of four for motorcycle use lies in the fact that they rapidly run down in long continued use. The writer and several acquaintances have had various unpleasant experiences in that line when attempting trips of more than 15 to 20 miles without a stop. It is true that these cells will, in a measure, recuperate if left standing, but the time required is altogether too great for convenience and is, in fact, out of the



The Vesta Accumulator

question if the rider desires to cover any distance in one day's run.

Another trouble that is not altogether the fault of the batteries, but lies in the way in which it seems to be necessary to attach them to the frame of a bicycle in order to make a compact group, is in the fact that this type of cell rapidly deteriorates if left continuously in a horizontal position. In a majority of motor bicycles that is the way in which the batteries are attached. This trouble is also aggravated

FROM CORRESPONDENTS.

by the jolting to which the batteries are subjected on the road.

The prime reason manufacturers use this type of battery is the low original cost, but it would undoubtedly pay the rider who has to renew his batteries after those furnished with the machine have run down to consider the matter of ultimate economy and look up a better battery.

While the first cost of any good storage battery is necessarily greater than that of the dry primary cells, the cost of recharging is so small that in a short time the storage battery has become the more economical. The rider has an outfit with which he can make some kind of a near estimate of the electrical energy he has on hand and is not liable to be left, as the writer has been, in some small town where, while there are abundant facilities for recharging a storage cell, a dry primary battery could not be obtained for love or money.

Of the various secondary batteries on the market, one of the best adapted to automobile and motorcycle use is the Vesta, made by the Vesta Accumulator Co., of Chicago. This is so constructed that it will stand any amount of jolting without harming it in the least. The containing cell is of rubber and closely wedged in this is the negative element, constructed of two cylinders of perforated pure sheet lead, separated by a square lead rod bent in the form of a helix. The space between these lead cylinders and between the convolutions of the helix is entirely filled with the active element, and the whole is burned together, making a compact mass. The positive element is also composed of a cylinder of perforated sheet lead inside of which is a lead pipe formed into a spider at the bottom, the ends of which are turned up and joined to the cylinder. The space between these two members is also filled with the active element.

This positive plate is held in its proper place in the cell by five rods, or pencils, of rubber tightly wedged between it and the outside or negative element, after which the remaining space is entirely filled with the electrolyte, which is of a jelly-like consistency, and the top tight-

ly sealed except a small vent hole, which is fitted with a plug except when the battery is being charged. The absence of liquid particularly adapts these cells to the requirements of portability.

Cells, of the number necessary to give the desired voltage, are then grouped in an outer casing of wood or fibre, according to the purpose for which they are to be used, and still further sealed to prevent moisture from getting either in or out of the cells.

An idea of the size of these batteries may be obtained from the dimensions of two of those in common use and particularly fitted for motorcycle use. A battery of 4 volts, 12 amperes is $3 \times 5\frac{1}{2} \times 7\frac{1}{2}$ inches, and one of 4 volts, 6 amperes capacity measures $2\frac{1}{4} \times 4\frac{1}{4} \times 6\frac{1}{2}$ inches. The smaller size should run a motorcycle, fitted with a good coil, 200 miles or over on a single charge, probably the cheapest electrical energy that can be obtained for this purpose.—Yours, etc., F. B. H.

JB

Searchmont Scales the Mountains

Philadelphia, Pa., July 10.—To the Editor.—We made a very interesting trip through the Blue Ridge mountains to Baltimore, by way of Lancaster and Gettysburg, a total distance of about 180 miles; 80 per cent of the entire trip was miles; 80 per cent of the entire trip was made to deliver one of the Searchmont wagons to James E. Hooper, of Baltimore, who has placed several orders with us for wagonettes. This particular vehicle is the second we have placed in his hands.

We took this mountainous trip with the view of testing the hill climbing capacity of our vehicle, and though the trip gave us the test we were after, it became monotonous before we got through with it.

The only mishap we had in the entire trip was the puncture of one of our 3-inch tires, 28 miles outside of Baltimore, and, being absolutely unable to repair it or get it repaired by the local bicycle men, we were obliged to run on a flat tire for the rest of the 28 miles, all of which was made in a terrible thunderstorm.

We took with us a running mate, a small experimental machine, equipped

FROM CORRESPONDENTS

with one of our eight-horsepower single-cylinder engines. We were anxious to find out whether this small machine was capable of going over the rough roads in a proper manner. Our expectations have been more than realized. Of course we expected that the large (12-horsepower) machine would have no difficulty in meeting these severe conditions, and therefore were not at all surprised at the admirable work this machine performed, but we were surprised at the little machine taking the hills, some of them over a mile in length and exceedingly steep and rough.

At starting we had some trouble with the brakes on the small machine, and in taking an exceptionally steep hill on a mountain side, 125 miles from Philadelphia, one of the electrical connections of the motor broke. Losing their power, and at the same time their brakes, the only thing to do was to ditch the vehicle, which the operator did, and severely damaged one wheel. This, however, was all the damage done to the machine. We held a consultation and determined to ship the machine back to the factory, and go on to Baltimore with Mr. Hooper's machine.

This route has been attempted by a great many automobilists, but so far there has never been a wagon that has successfully completed this trip. We therefore feel gratified that we should have been the first ones to make this run successfully. In passing all the toll gates, we ascertained that ours was the first automobile seen in that country.

In a letter received from Robert P. Hooper since my return, I find the following:

After you left Baltimore yesterday, Mr. Gill and several other gentlemen called at the house, and were surprised at the fine condition the machine was in after the hard run we had from Philadelphia. Mr. Gill stated that in his opinion it was a first class machine in every particular, and he thought father had made no mistake in buying it. I was absolutely astounded at the way the machine ran, and to be perfectly frank with you, I had no more idea when I started that that machine would ever reach Baltimore over such mountainous roads

than I had that I was going to take a trip to the North Pole. In my opinion, you are perfectly justified now in saying to any or all of your customers that your machine will go anywhere that you can possibly get traction, and if you want anybody to tell them what kind of hills it will go up, refer them to me, and I will tell them something about it. Long distance automobiling is great sport, but the next time we go out, let us take a country where there are not so many hills, so that we will not have to bake in the sun.

James E. Hooper is the president of the Automobile Club of Maryland and the head of the great cotton duck interests. The writer of the letter, Robert P. Hooper, is his son, who accompanied me on the trip.

On the small machine we built an ice chest, which furnished us with ice water and other cool drinkables, a feature well worth considering on a long, hot trip.—Yours, etc., E. B. Gallaher.

JB

Device Used by Grout Brothers

Orange, Mass., July 9.—To the Editor.—In reference to article in June 27 issue, the burner described by Mr. Hendricks is a very close duplicate of, though not so complete, as our own arrangement, which we have used for nearly a year and a half, and for which we hold patent.—Yours, etc., Grout Brothers.

(The device suggested by Mr. Hendricks was a blow torch, so placed as to burn directly on the main burner, the object, of course, being to prevent the blowing out of the fire.—Ed.)

JB

He Handles Bicycles Intelligently

Burlington, Vt., July 7.—To the Editor.—I am sending you a photograph of my bicycle store or shop. The business differs from the general run of bicycle agencies in two respects: First, we deal in bicycles exclusively, selling, renting and repairing; second, we are located in the residence portion of the city, nearly half a mile from the business center and the five or six other bicycle agencies.

I began here in the spring of 1897. We sold that year 53 bicycles, 120 in 1898, and about 200 each year since. The repair trade has increased in about the

FROM CORRESPONDENTS.

same ratio, but rentals, from \$1,200 in 1897, have dropped to about one-half that amount. Three of us are kept fairly busy all winter, as I make a point of getting in all the bicycles I can to repair, clean and store until spring. Last winter we had nearly 200. I have always found the Age a great help and use it particularly during the winter in getting points for the next season's trade.

In regard to the future of the bicycle business, it seems to require a little more effort each year to keep it on a paying basis. One of the hardest things we have to contend with is the cheap wheels coming out of Chicago. I have no means of knowing how many, but think something like 2,000 must come into Vermont each year. To be sure, we get repair trade out of it, but prefer selling.

I find all the new things manufacturers bring out in the way of enamels, size of tubing, etc., help to sell bicycles. One thing in regard to ladies' bicycles I would specially bring to notice. They are too heavy. Here is a list of the actual weights of my spring samples:

Ideal, list \$25, weight 28 lbs.; Geneva, list \$25, weight 28½ lbs.; Featherstone, list \$35, weight 29½ lbs.; Crawford, list \$35, weight 27 lbs.; Dayton, list \$40, weight 27 lbs.; Pierce, list \$40, weight 28 lbs.; Orient road, weight 26½ lbs.;

Yale, list \$40, weight 24½ lbs.; Tribune chainless, weight 28½ lbs.

The weights of the Yale and the Tribune chainless indicate that other machines can be made lighter weight.

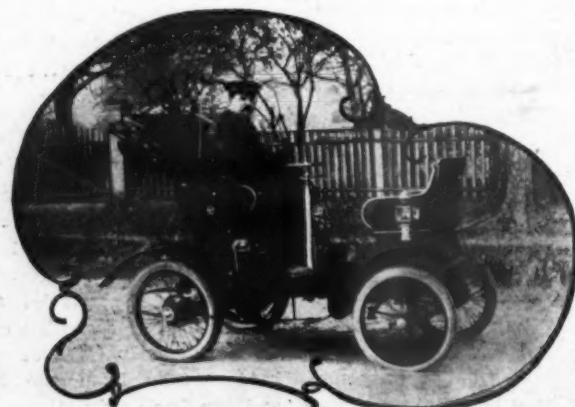
We hope to see one-inch tubing used to a greater extent next year. We also anticipate a bright future for the motor cycle, and expect to start in with them as soon as the time is ripe.—Yours, etc., E. Frank Lane.

(The picture referred to shows one of the best-looking establishments of which we have knowledge. It shows a splendid stock of machines, numbering at least 75, and indicates that the sale and care of bicycles may be made profitable when handled exclusively by a man who handles them intelligently.—Ed.)

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A Progressive Landlord

Niobrara, Neb., July 10.—To the Editor:—I have under construction a 15-passenger auto car which has an 18 horsepower steam engine. I am an engineer and a lover of steam, and, having studied the matter carefully, would advise steam power in all cases. The Scott Automobile Co., of St. Louis, is finishing my machine. I made it here, all except putting in the power and a few minor details.—Yours, etc., C. Hemstreet, proprietor of the Hubbard House.



HUB MOTOR READY FOR BUSINESS

The first of the hub-motor omnibuses, which are to be placed in the public service, arrived in Chicago last week from the works of the Westinghouse Co., at Pittsburg. It is designed to seat 20 passengers inside and the same number outside.

Originally Harry L. Irwin, now general counsel, and Charles Berg, now vice-president of the company which will operate the vehicles, were the owners of the patents by which it is covered. The latter organized the Hub Motor Co., capital, \$1,000,000, and turned over to it all the United States patents.

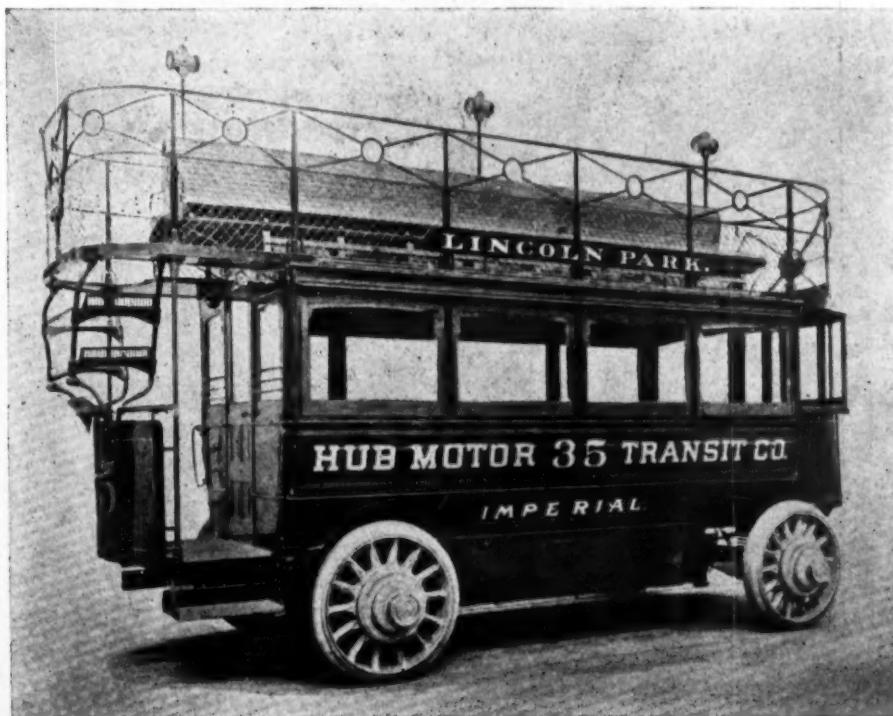
Next a deal was made with Mr. Westinghouse, of the Westinghouse Electric & Mfg. Co., of Pittsburg, under which that gentleman secured a controlling interest in the company, having first made a four months' test of the apparatus.

Then followed the organization, by Mr.

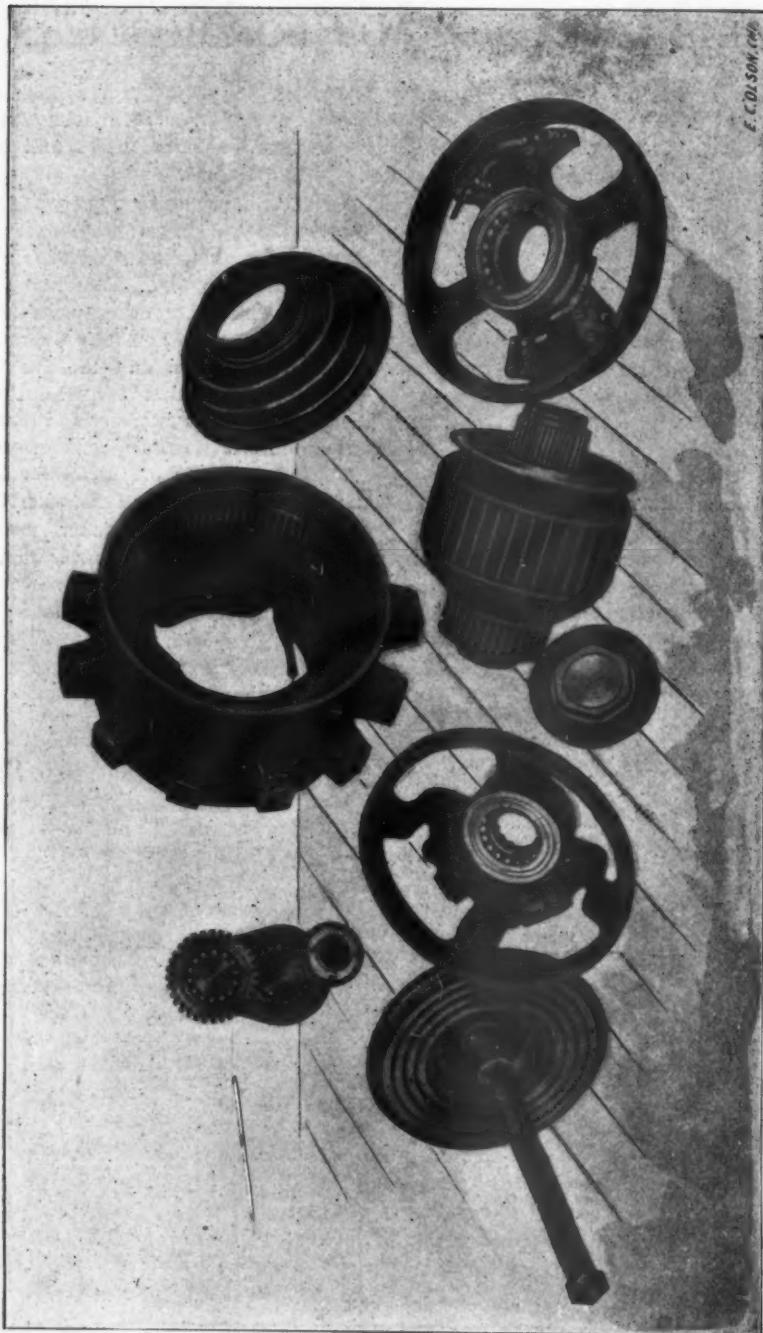
Berg, of the Hub Motor Transit Co., also a \$1,000,000 corporation, which will control the use of the hub motor for omnibuses in Illinois.

The original company has made a contract with the Westinghouse company, giving it the exclusive right to manufacture under the patents. The manufacturers will supply motors and axle stems to all carriage and automobile builders who want to buy them and the Hub Motor Co. becomes a distributor of hub motors instead of a competitor of the makers of automobiles.

The officers of the Hub Motor Transit Co. are as follows: President, Charles Wurts, manager of Fisher, Martin & Wurts; vice-president, Charles Berg; secretary, George M. Seward, secretary of the Chicago & Milwaukee Electric Railway Co.; treasurer, George K. Shoenerger, manager and treasurer of the Ge-



THE HUB MOTOR.



THE PARTS OF THE HUB MOTOR.

E. C. D. SON CO.

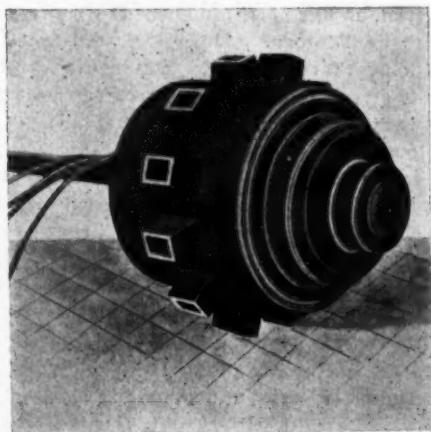
THE HUB MOTOR.

neva Optical Co., and president of the Chicago Boiler Works; general manager, Paul D. Hamlin, partner in the Sargent Lumber Co.; counsel, Harry L. Irwin, counsel of the Hetty Green estate, H. C. Stone and many corporations.

The present plans of the company contemplate the conduct of several lines in Chicago, and the equipment of other companies, which may desire to operate under the control of the parent company. It does not intend to operate buses in other cities, but to grant privileges to others to do so. The Chicago service, Mr. Berg says, will commence with at least 50 buses, each running 19 hours daily, over specified routes, and the company's motto will be "no seat no fare." In other words the buses will carry only the number of passengers for which they can furnish seats.

The lower portion of the company's vehicle is handsomely finished, has plate glass windows and plush upholstery. There is an electric push button at each seat with which to signal the operator. On the upper deck the seats are placed back to back and the push buttons are located on the ridge between the seats. The motorman is separated from the passengers, being stationed in a glass inclosed compartment in front.

The distinctive feature, however, is the propelling mechanism, which is in the

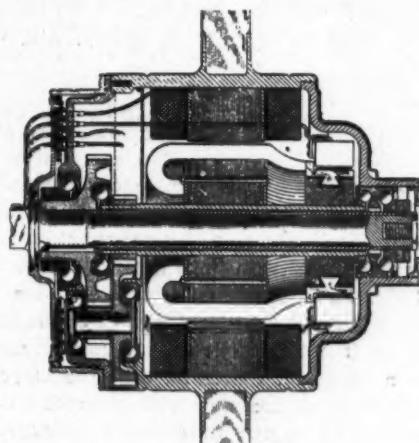


The Hub Motor.

form of hub motors, or, perhaps, more properly speaking, motor hubs, which are a specially designed and constructed elec-

tric motor encased in the hub.

The armature is built on a tubular sleeve which surrounds the axle and is supported on ball bearings located in the hub shell. The power is transmitted through a series of gears to the hub shell. The fields are built into the hub shell and rotate with it. The gears, which are very simple and may be readily understood from the illustration, are located in the inner end of the hub. The commutator is



Sectional View of Hub Motor.

in the outer end and readily accessible by removing a pressed hub cap.

A set of hub motors such as are used on the buses was recently tested at the Westinghouse shops. The certified test shows that the four have a normal output of 28 horsepower, seven horsepower each, and will develop twice that power for considerable time without straining the mechanism. It is also asserted that power can be momentarily exerted up to the remarkable over-load of 500 per cent.

The wheels used in connection with the hub motors are of wood, with solid rubber tires, but the company is experimenting with a pulp or composition hemp tire which is expected to outlast two sets of rubber.

At present the vehicle is steered by a hand wheel with a reducing gear, but it is intended, in the near future, to install a small electric motor and controller which will be used exclusively for steering.

The battery, consisting of 80 cells, is carried in a tray under the body of the

THE HUB MOTOR.

vehicle, the tray being hung so that it is easily removable when it is desired to change the battery. The Hub Motor Transit Co. owns or controls patents on two inventions relating to storage battery plates which are regarded as of much importance. One of them is a chemically-formed plate and the other is a pasted plate. By the use of glass wool protection, it is said, the life of the plate is considerably prolonged and a greater output is secured. This battery, which is the invention of J. K. Pumpelly, will, it

is said, give seven amperes discharge per pound of weight, including electrolyte and cells.

The vehicles will not be required to run long distances without recharging. The battery to be used need be only of sufficient weight and capacity to propel the vehicle to the city and back to terminus where charging and changing stations will be established.

The company shows photographs of a number of vehicles fitted with hub motors.

CHAINS, WELL APPLIED, ARE EFFICIENT

One of many remarkable developments due to the skill of cycle makers is the steel block chain which, thanks to the work of men who have given it years of study, has reached a remarkable degree of perfection in the factories of those who make it with due care. It might have been expected, therefore, that the bicycle makers who are now aiding in the development of the automobile would not fall into common errors in applying their knowledge concerning chain transmission of power. Yet, strange to say, they do this very thing. The experience they gained with bicycle chains is apparently forgotten and trouble and expense follows.

Many makers of horseless vehicles equip machines with the ordinary 1-inch pitch block chain and calculate that the addition of $\frac{1}{8}$ to $\frac{1}{4}$ inch in width will make up for the additional duty required. The result has been disastrous, and, as a consequence, many condemn the chain as a power transmitter.

Roller chains for the transmission of power are not only satisfactory, but singularly efficient under the following conditions:

Where dimensions of chains are proportionate to the duty required.

Where they embody the greatest degree of accuracy.

Where they contain correct proportions in their integral parts.

Where the rivet surface is large, the frictional surfaces hard and the material first-class.

Where the sprockets are not too small and are properly and accurately milled.

The roller chain is eminently satisfactory. No other method of transmission excels it.

Automobile manufacturers are now awake to the importance of using heavier chains, having greater tensile strength and larger rivet surface. In light runabouts, where the 1-inch pitch block chain has been most extensively used, the duty required demands the use of a 1-inch pitch roller chain $\frac{5}{8}$ or $\frac{1}{2}$ inch wide, with large rivets made from the very best material. It has been found by the managers of the Diamond chain plant, at Indianapolis, that this chain will show a tensile strength 100 per cent greater than the 1-inch pitch block chain, that the frictional rivet surface is more than 75 per cent greater, and the added weight to the vehicle is not over three pounds.

Considering the fact that elongation comes from both wear and stretch, it is wise to use a chain sufficiently large to approximate the degree of safety, which varies with circumstances, and, acceding to these circumstances, the working load should vary from 10 per cent to 3 per cent of the breaking strain, the smaller per cent being the most economical and efficient.

LATE EVENTS WHICH SUGGEST REFORMS

The late run of the Chicago Automobile Club over the roads of Wisconsin seems to have stirred up the trade element in the club. All the participants used steam vehicles, and of these about eight were of one make and four of another. The run lasted four days and nearly all of the operators had more or less trouble, due largely, according to the accounts given by themselves and about each other, to negligence or ignorance of the machines.

After the run the Milwaukee papers printed a report, which was also wired to the Chicago papers, in which it was said that of 12 Milwaukee vehicles which started, only two were able to finish. This statement is attributed by the Milwaukee people to their competitors, one of the gentlemen connected with a Chicago house having been quoted by one of the papers. In justice to the gentleman, it should be stated that he denies having said anything of the sort.

The fact is that only four Milwaukee vehicles started. Of these two finished with the party. One was disabled by a burned boiler. The fourth towed the disabled machine home, a distance of 90 miles, in $8\frac{1}{2}$ hours, so that, taken all in all, the record of the four was by no means bad.

And now the Milwaukee people are telling what happened to the other fellows. And, in the language of the street, they "are not doing a thing." They are particularly angry because, at the outset of the run, they went to considerable trouble in fixing up one of the rival machines which had been temporarily disabled through sheer stupidity, without charging the owner a penny for the service. They think this example of good will ought to have been followed by their competitors.

¶

Entirely aside from the incident above related, this matter of disparaging other men's goods needs consideration, especially in Chicago. Along Wabash avenue it is notorious that the salesmen who handle steam vehicles lose no oppor-

tunity to tell all the faults of their competitors, often forgetting to stop at mechanical details and going into alleged particulars of the business methods and personal peculiarities of the people connected with rival establishments. In social life that sort of thing would be considered bad form, to say the least. In the commercial world it is unnecessary, and does more harm than good to all persons concerned. There are gentlemen and ladies among the purchasers of automobiles. They do not visit the stores to hear lectures on the iniquities of other makers. They go to become convinced, if they can, of the practicability of automobiles, and the first thing they encounter is a tirade of abuse of all others than those sold by the men to whom they happen to be talking. The result is that they sometimes go away convinced that there is no machine safe to buy.

¶

The actual results of this sort of thing have been demonstrated to the knowledge of the writer. A gentleman who contemplated the purchase of a steam vehicle called at all the stores on Wabash avenue. At every one of them he heard the same story. He realized that there must be some fire where there was so much smoke, and finally decided to keep his money and ride on a street car.

Aside from the injurious effect on prospective customers, is it sound business policy to try to win trade by abusing competitors? We believe not. As between the man who is wholly a gentleman and the man who is only an attempt at one, the former will always win in the end. People instinctively recognize the safety of doing business with a man possessed of sufficient self-respect to refuse to be drawn into uncommercial controversies. To a description of the superiority of certain features of construction no one can object, but when bitterness is injected it is time to call a halt.

¶

Men who sell and handle automobiles

SUGGESTED REFORMS.

are apt to look with pitying condescension on prospective customers and others and to wonder how it happens that people can be so stupid as not to understand the simple—to them—points of construction of a motor vehicle. The fact is that mechanics are unable to make allowance for the utter absence of mechanical information prevailing among the general public. If Mr. Salesman will try to give us a description of the manner in which Mr. Morgan conducts his financial operations or the methods by which the astronomer measures the distance between the sun and the earth, he will begin to have some conception of the way the average man feels when one commences to talk to him about the construction of an automobile or any other piece of machinery.

A taste for mechanics is born in some men. They improve it, without becoming actual working mechanics, just as a lover of music grows to understand something of the subject without becoming an expert musician. But the great majority of people are not mechanically inclined, so that a thing which is, to a mechanic, as plain as the nose on his face, is to them utterly unintelligible.

▲

Here is an example to show that even the men who handle automobiles for a livelihood don't know all—and sometimes know very little—about materials used in their everyday work. In a recent run, no matter where or by whom, several of the participants were men engaged in the industry. They wanted to carry along a store of lubricating oil. They operated steam vehicles. So they filled three bottles, sealed them tightly, and placed them—where, of all places in the world? In their water tanks. The idea was that the heat of the water would keep the oil warm, so that it would run freely when needed. It kept warm and it ran freely all right. Of course the expansion of the oil burst the bottles. The oil was pumped into the boilers and there was another case of "water which caused the boiler to foam and is therefore unfit for use."

Now, if men who ought to know better cannot realize what would happen to oil under heat and would do such a trick,

how can they wonder at the seeming density of some of their customers?

▲

A gentleman who sells gasoline machines tells the following story of his experience with a customer:

"There are two classes of buyers, one stupid and the other five times as stupid. A few weeks ago I sold a machine to a gentleman who knew nothing about it, and it took me two days to teach him to steer it. I suppose I told him at least 20 times how to start the vehicle, and then he had it by heart. One day he asked me to let him start the machine himself, and requested that he be given a chance to display his proficiency without interruption or suggestion. It was a hot day. He removed his coat, made all the adjustments he could think of, and prepared for triumph. Round went the crank, but the motor didn't budge. He looked abashed, but assured me he would make it go the next time. But he didn't. Then he commenced to mop his brow and complain of the weather. I believe he tried it 20 times before he finally announced, with some anger, that the — machine was no good and that he may as well consider his money lost. It was about time to tell him his trouble, for he had learned a lesson which he will never forget about this particular point, so I advised him to turn on his spark and try again. Of course he looked foolish, but now the first thing he does is to see that the sparking apparatus is in good working order. The man who learns from good, hard experience like that makes the best operator in the long run."

▲

On a recent run of the Chicago Automobile Club Mr. Donald, the first vice-president, had some trouble with the front wheel of his gasoline carriage. It was impossible to steer the vehicle. Mr. Donald is a man of ideas. He hunted for a long piece of timber and lashed it to the vehicle so that it raised the wheel off the ground and projected from five or six feet in front of the machine. Then he ran backward to the nearest barn, about two miles away.

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"A little while ago I had an experience which puzzled me greatly," said one of

SUGGESTED REFORMS.

the best operators of a steam vehicle in Chicago.

"I started with a full boiler and as soon as the water came down in the glass I started the pump. I had a feed water heater which ran back to the muffler, and no sooner had the pump commenced to work than I heard a sizzling down there which frightened me. Of course I stopped and made an investiga-

tion. For a long time I was unable to locate the trouble. Finally I found that the water pipe had burst inside of the muffler. The trouble was all of my own making. I had omitted to open the valve between the water pump and the boiler and the apparatus had given way in its weakest spot, which proved to be the pipe referred to, due, I suppose, to repeated heating."

A SIMPLE BUT EFFICIENT GASOLINE VEHICLE

During the past week a representative of this paper has ridden in and carefully examined a gasoline carriage which, while crudely constructed and of far from handsome design, promises to mark an epoch in automobile construction.

When the inventor wrote a letter setting forth, in a general way, the features embodied in his machine he was informed that he would have to show, by practical demonstration, that his claims were not based on an inventor's enthusiasm before this paper could give them publicity.

The claims, which at first glance appeared questionable, were that the machine was under perfect single lever control; that the power was absolutely flexible; that the motor could be started at any time by the mere turning of the spade handle of the steering lever one-quarter way round by the exertion of no more force than would be required to turn an ordinary electrical switch; that there was an absence of all gears except the usual differential and the cam gears in the engine.

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The result of the objection to accepting these seemingly extravagant statements was an arrangement to meet R. P. Price and Andrew Benson, the inventors, and receive an ocular demonstration of the truth of their claims. The carriage possesses all the ear marks of somebody having "made it himself." After getting aboard, however, the observer's mind changed rapidly. Mr. Benson inserted a spade handle, which is removed when the machine is not in use, in the end of the steering lever, which is the only one in the carriage, and, upon giving it a quarter

turn to the left the carriage promptly and smoothly started at slow speed. When the lever was slightly depressed the speed increased. By a slight up and down motion the speed was varied, and upon moving the handle back to its original position the carriage was stopped.

The grip of the handle being given a slight rotary movement the handle was again moved as before, whereupon the carriage started backward. The speed was varied as before.

There was no adjusting of a carburetor, opening of relief cocks or attention to other impedimenta, as is ordinarily the case, the starting power being sufficient to work against a full compression and the gasoline feed being automatically controlled by the engine.

Properly speaking there is no carburetor, the gasoline being taken from the tank in measured quantities and injected into the cylinder as a liquid. It is instantly vaporized by the heat of the cylinder and mixed with the proper quantity of air drawn into the cylinder during the suction stroke.

The inventors do not desire to exploit their devices in detail on account of foreign patent applications, and at their request only a general description of the mechanism will be given at this time. The motor is started by a shunt wound motor, served by a battery of 16 storage cells, so wound that, when the engine attains its normal speed, it becomes a charging dynamo and holds the battery up to its full strength. The actuation of the spade handle, switches in the motor, the armature shaft of which is a continuation of the crank shaft of the engine,

THE RENTAL OF AUTOMOBILES.

and therefore starts the engine at low speed and acts as an aid to the engine until it has reached its normal speed, when, as stated, the motor is transformed into a dynamo.

The transmission of power and the regulation of speed is under air control, operated, as stated, by a vertical motion of the steering lever. In the operation of this device no great quantity of air is used, and there is no necessity of tanks, compressors, etc. The air is compressed in four cylinders, radially arranged around the crank shaft, each containing a single acting piston directly connected to a double crank arranged for the pur-

pose on the shaft. These cylinders are so arranged that they act as a fly wheel, avoiding extra and undesirable weight.

The entire mechanism so far described is located on a single shaft. The transmission of power from the cylindrical regulator is by chain, direct to the differential gear.

The inventors, who are operating under the name of R. P. Price & Co., at 156 Washington street, Chicago, are desirous of interesting capital, and as they seem to have the fundamental principles of an excellent vehicle it is to be hoped, in the interests of the industry, that they may succeed.

MACHINES TO RENT—A GROWING DEMAND

There is a demand, which might be turned to good account by makers, for automobiles to rent. The trouble, of course, is that it is necessary to know that the prospective renter knows his business and may be relied on to return the automobile in as good condition as he found it. The uncertainty on this point has prevented the rental of machines by persons who might, under other circumstances, have transacted a profitable business.

Some time ago a maker was quoted as saying that automobiles would never be rented. In that opinion he was wrong, for they have been and are being rented to-day, though only to persons known to the owners as men capable of managing them properly.

Now comes the question: How may dealers and others, who have vehicles which they could rent, know anything of the ability of their customers? Carl Fisher, of Indianapolis, set the ball rolling some time ago by issuing diplomas. He made up a class of 100 beginners and taught every one of them how to operate machines. For this service, of course, he made a charge. When satisfied of the ability of the amateur to handle a machine successfully, he gave him a certificate to that effect. Here is the form used by Mr. Fisher:

Indianapolis, Ind.—This is to certify that bearer, Mr., has thoroughly

mastered the operation of electric carriages and we consider competent and a reliable risk in the rental of same.

Signed 1901.
Fisher Cycle & Automobile Co.

But he did not stop with the diploma. Whenever he rented a vehicle he required the renter to sign a guarantee of its safe return. Here is the form:

Indianapolis, Ind., 1901.—I, the undersigned, do hereby agree to be responsible and pay for any damages to electric vehicle which I have this day rented which may occur through carelessness or neglect on my part, or through accident.

The receipt of bill for injury to machine from any of above causes I shall consider as just for settlement as per amount set forth.

Signed

Mr. Fisher's diploma is useful, but its field of usefulness is necessarily limited. Not every dealer in the country knows of Mr. Fisher. Those who do would be willing to accept his assurance of the ability of the customer. Those who do not would not feel safe.

What is wanted is a national guarantee of some sort. It might be issued by the manufacturers' association and blanks supplied to its members. Or some of the well-known manufacturers might issue blanks which could be used by their

THE RENTAL OF AUTOMOBILES.

branches and agents. This might be done to such an extent that competent operators might be able to rent machines no matter where they might happen to be.

There will be a constantly increasing demand for automobiles just as there is now a demand for horses, buggies and bicycles. The concern which caters to the demand early in the business may profit largely by its enterprise later.

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Indianapolis, Ind., July 9.—To the Editor:—We organized a club of 100 members who paid \$5 each to be taught how to operate an electric carriage. As soon as the member was thoroughly competent to operate a carriage, we issued him a diploma of which we herewith enclose you typewritten copy. This diploma entitled him to rent an electric vehicle from us at any time, at the rate of \$1 per hour during week days and \$2 per hour on Sundays and holidays. We have made our little Waverley electric pay for itself and at the same time have interested hundreds of people, through our renters, who otherwise would not have been interested in automobiles, and we managed to sell several machines to those who, probably, never could have been sold but through the scheme presented. I have no trouble in teaching ladies to operate our carriage. In fact, they have less trouble and are more careful than the gentlemen.

We expect an especially good rental season during the fall months when the

roads are not so dusty and riding more pleasant. We would like to see the movement general among the bicycle and automobile dealers throughout the country and would like to see an association formed, the members of which would recognize diplomas issued by other clubs.

—Yours, etc., Fisher C. & A. Co.

JB

To Emulate Lot's Wife

In its report of the late Liverpool trials the Automobile Journal offers the following suggestion: "It is very difficult for the driver to see behind him when his load is of any size, and it is almost impossible for him to hear any other vehicle which may be overtaking him. These wagons take up a good deal of room, and it is often wise for the driver to pick his way when right out in the country on an indifferent road. Under such conditions delay is likely to be caused to the faster moving traffic, and any such inconvenience can only be avoided by enabling the driver to see behind him. Something in the way of a mirror, placed in some convenient position outside the wagon, would apparently meet the difficulty. It is a device which has frequently been resorted to with success for similar purposes, and is at any rate worth consideration."

JB

Korn & Breiding, of Sterling, Ill., have built and tested an automobile. They expect to make others.





CYCLE SPORT AND TRADE



When Zimmerman came home from Europe with the scalps of the best riders at his belt what sort of a reception did he receive?

There was nothing in the country good enough for him. He had nobly represented the United States in Europe. He had demonstrated that the Yankee cyclist led the world in the matter of speed. And he was rewarded as he deserved.

And now comes Taylor. He has done as well as Zimmerman. His average is at least as good. He met men who were faster than the men of Zimmerman's day.

He arrives at New York in the morning and rides an exhibition in the afternoon, although in no condition to do so on account of a long spell of seasickness. He goes home for a few days' rest. Isn't he entitled to it? Isn't it a fact that he has just finished a long and tiresome campaign abroad and a journey of 3,000 miles across the ocean?

He complains that he is not well enough to ride for a few days and telegraphs the management of the racing at Madison Square Garden to that effect. What do they do? They complain to the N. C. A., which promptly fines him \$100 and notifies him that it will repeat the dose for every meet he misses.

Such is fame. Such the reward of the man who goes abroad, to win less money than he could have won at home, and upholds the honor of the country.

Who would have dared to treat the mighty Zimmerman as the N. C. A. has treated Taylor? The wrath of the whole cycling world would have fallen on the head of any one who had dared suggest such a thing.

Where are we to look for an explanation? Zimmerman was a white man—in

fact and in action. Taylor is a negro. Is that at the bottom of the trouble? Negro as he is, he is, without exception, the cleanest man who ever went over from this side since cycling became a sport. His principles are of the finest and they are maintained to the letter. Whether we agree with him or not, we are bound to admire the pluck which prompts him to refuse to yield to the demands made upon him to ride on Sunday. To Taylor a departure from the rule would have meant an immense amount of money.

Taylor took part in no brawls. He was, in Paris, as at home, quiet, unassuming and respectable. Who will say as much of a majority of the athletes who go over from this side? And his reward is that he must submit to the modern slavery inaugurated by the N. C. A. Oh, well, he's only a negro.

A system which makes it necessary to control men with a grip of iron and to take from them, sick or well, the right to say where and when they will compete robs cycling of all semblance of sport. It makes cycle racing a commercial thing pure and simple, a contract of bargain and sale. As such it is repulsive to those who love cycling for the sake of the sport they get out of it. They have no admiration for a gang of hired men whose ambition in life is to dash around a track wholly and solely for the dollars there may be in it and without the least regard for the excitement of the sport. To such men there is but one rule. Make money. If it can be made more easily by trickery than by honesty, be tricky. Taylor is not tricky.

So far as the control of men of this class is concerned the N. C. A. has doubtless done well. But its action in the matter of Taylor will not meet with the ap-

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proval of any man who is not so blinded by avarice or prejudice as to forget that even the despised negro has rights.

The chairman of the N. C. A. board of control is alleged to have expressed the opinion that Taylor's object in remaining away was to avoid possible defeats. That would seem to be an extraordinary discovery. For what other purpose would he stay away? Is it not reasonable that after an ocean voyage the man should feel unable to do himself justice? Is he not entitled, as well as any other man, to decline to take part in a hard competition until he feels that he is able to do himself justice? Is a sick man to be compelled to follow the circuit just because some promoter, whose sole interest in the matter is dollars, might be touched in a tender spot if he did not? The interest of the promoter ought to be looked after, it is true. But suppose some smaller fry had been unable to compete, would he have been fined \$100? Probably not. He isn't as big an attraction and therefore would not be missed. And yet Taylor receives no greater consideration, to compete, than does the man of less importance.

If the N. C. A. expects to retain the respect of fair-minded men it will let up on the colored man or give some better reason than it has done, so far, for its action. The mere fact that Taylor doesn't compete, and bow to the bidding of some promoter, won't do for an excuse.

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It is not remarkable that, under the circumstances, Taylor has announced that he will retire from the path. According to the Springfield Union he "has received a telegram announcing that he must ride, no matter whether sick or well. The major is ill at his home in Worcester with stomach trouble. A doctor's certificate of his condition was sent to Chairman Batchelder, but this evidently had little weight, for yesterday the colored sprinter received a telegram which read: 'You must appear at all national circuit meets, sick or well.'

"From R. F. Kelsey, the official handicapper for this state, the major received a similar telegram, which informed him that he must appear in Bos-

ton last night, Providence to-night and Worcester Friday night or else submit to a fine of \$100 for each time he is absent.

"The major says he isn't fit to race and therefore cannot attend. Furthermore he does not intend to pay any fines imposed upon him and this will probably mean that he will be forced from the track. He says that he paid \$500 to the National Cycling Association last season to be reinstated, while several other riders who were blacklisted at the same time, and for the same cause, were let back into the fold without paying anything. The National Cycling Association, he says, has received its last fine from him, and if it decides to shut him out from further racing then he cannot help himself."

Despite the assertions made Taylor decided, on Tuesday, to pay \$300 in fines and continue on the circuit.

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Stinson's Hour Record Broken

While a German made himself celebrated in Paris by winning the Grand Prix, and while a Frenchman was carried around on the shoulders of a delirious German crowd in Berlin, another German, Robl, was breaking the hour record at Leipzig. When the bell rang calling Robl and Dickentmann fully 8,000 people gave them an ovation. The Leipzig track is of 500 meters and one of the finest in Europe. It did not take 20 minutes until all German records were buried with honors. After the 20th kilometer Dickentmann's tandem had an accident and the Dutch rider lost nearly one and a half laps. Soon after it was Robl's turn to have an accident with his tandem, a tire puncturing and causing the pacers to fall. His second tandem took him before the end of the lap and he lost little ground.

The Dutchman was gaining a little at every lap when, after the 24th kilometer, his tandem had another mishap and he was left without pace for almost three laps. This was enough to discourage him and he only continued to ride because he had to. During that time the 8,000 throats were encouraging Robl and yelling to him to break the record. The German went splendidly and when, after the 35th kilometer, the announcer stated that

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the record had been smashed the yelling never ceased until the end. Never before, not even Arend when he rode his match against Taylor in Hanover, was a rider so encouraged. At the end of the 60 minutes 65 kilometers 512 meters (40 miles 560 yards) had been covered, as against 64 kilometers 695 meters, the former record by Stinson. The other new records are: 35 kilometers, 32:19 3-5; 40 kilometers, 36:55 3-5; 45 kilometers, 41:31 3-5; 50 kilometers, 46:05 4-5; 65 kilometers, 59:34 2-5.

Robl is but 24 years old and comes from Munich. He was married two years ago and his wife is his manager. He was third in the Bordeaux-Paris in '96 and second in the Bol d'Or, behind Huret, the same year. Last year he won the big middle distance race at the exposition and was again second in the Bol d'Or behind Cordang.



Elkes Seems Unconquerable

New York, July 13.—Brady, by putting up gilt-edged programs, has at last got the public going to Manhattan Beach in numbers commensurate with the character of the sport provided. Notwithstanding clouds all day, 5,000 people were there this afternoon to see Elkes, Walthour and Michael in an hour race, all the racers in an open and a handicap, and the best of the amateurs in four contests.

Walthour led for two miles at a heart-breaking pace and then Elkes swept grandly into the lead and was never headed, winning by a mile and a half a lap, and covering 37 miles 1,463 yards in the hour, a new record for the track.

Walthour put up a game fight for 11 miles and then Elkes walked away, lapping him in the 17th, 25th and 35th miles.

Michael got into difficulties with his pace early in the game and was lapped by both men on the 11th mile. He was also lapped three times by Elkes.

Kramer won the third mile open despite the fact that Cooper had had a sleigh ride into the stretch on McFarland's wheel. Wilson, that fast improving ex-amateur, took third money.

The Englishmen scored their first win in an open race in the half-mile handicap. In the final Jenkins was at 45 yards and

Gascogne at 30, with no one ahead or between. What could the poor boys do? Gascogne for once refused to play the easy mark and be used as a tug boat. He held back the bunch long enough for his fellow countryman to get a winning lead and score first in 58 4-5, with Fisher (20) second, Freeman (20) third and Fenn (15) fifth.

Hurley won the third mile open and the half-mile handicap, and scoring third in the two-mile handicap with a track record of 4:22 1-5.



Night Racing at Manhattan

New York, July 14.—It looks as though night racing was going to be a go at Manhattan Beach despite the croakers. Those who journeyed to the sea last night expecting a frost were surprised to find 5,000 on hand. There had been paper put out in profusion, but the Pain fireworks and the races so delighted all comers, judging by continuous cheering, that they will be at the beach often on Wednesday nights.

The leading attraction was a motor-paced race of 10 miles for amateurs. The pures put up the most successful multi-starter race yet. Little Smith, the mile record holder, won by a half a lap in 17:40 1-5, with Schofield, Van Cott, Bedell, Dove and McClelland following him in order.

Tom Butler easily beat John King at a mile and a three-mile, motor paced.

Hurley won the third mile open and the two mile handicap in 4:23 2-5, the amateur track record.



A Record at Vailsburg

New York, July 14.—With the opening of the national circuit and the assured success of both Madison Square Garden and Manhattan Beach, cycle racing has taken on a new lease of life at Vailsburg. This afternoon there were fully 7,000 spectators.

There was a combination mile scratch race, in which the professionals divided themselves into teams of two and team work went, and a five-mile competition record trial by Hurley.

In the team race 13 teams were divided

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into four trial heats, which were won by Kramer, Newhouse, Freeman and Wilson.

In the final Fisher dropped Kramer and Downing let go Freeman even at the last turn. The latter came with a rush and missed beating the Jerseyman by inches. Wilson and Newhouse finished in that order.

The handicapper had put good men way out in the five-mile handicap for Marcus Hurley's attempt to beat Cadwell's amateur competition record of 11:30 4-5. Two-mile heats were necessary.

John Bedell, scratch, and Welsing, 30 yards, were absent. This left a 60-yard jump for Hurley to Firth and Harry Welsing, who changed pace so effectively

that Hurley had to quit after riding a mile unpaced. Warren Zurbrick, of Buffalo, was the only scratch man to qualify. Saward (200) won in 11:18 1-5, with Garrabraut (250), second; Chappey (400), third. Zurbrick was 100 yards or more to the bad, but was timed officially at 11:29 3-5, which now becomes the handicap and competition record.

Fisher (20) won the "pro" half mile handicap in 1:00, with Cooper (scratch) second, Kimble (25) third and Floyd Krebs (40) fourth.

Of course Hurley won the half-mile open in the usual sure but close-drawn style. Billington was second and Dove third.

THE GRAND PRIZE OF PARIS

BY A BRUSSELS TRACK MANAGER.

Paris, July 1.—Saturday we decided to make a trip to Paris and witness the final of the Grand Prix of the Republic. Paris was excited, for the result of the Paris-Berlin road race was known a few minutes before we arrived. On the boulevard it was the topic. It was like an anniversary of some great victory, or the announcement of some presidential election. Every one seemed interested from the captain of the Gardes Republicain to the fellow who yells on the doors of shows and museums. In fact, there was general rejoicing, and I do not blame these good people, for it is without doubt a great commercial victory.

Well, of course, there was just as much talk at the Princes track about Fournier's victory as in town, and some one made the remark: "Well, a Frenchman won on German soil; maybe Arend will win the great prize." Some laughed; some thought it over. I, for my part, thought it probable, as from late reports the German crack was in a condition he never had been before.

While the attendance was but a little over 12,000, it was the most elegant it had seen since the big race is run. Many officials, among them Minister of Commerce Millerand, who came, officially, to represent the government, were much cheered.

The three semi-finals were very interesting. In the first one Seidl, Conelli and Ellegaard lined up. The Italian kept in the rear until the bell, when he tried to escape, but Ellegaard saw the move and went to the front, increasing the speed. Seidl produced his effort in the home stretch and fought very gamely, but with no better result than to finish second by half a wheel.

Momo, Van den Born and Arend lined up in the next heat. Two laps were run slowly. At the bell Arend went to the front. Soon after Van den Born, in a splendid and well calculated effort, passed his competitor, taking two lengths. Arend caught the little Belgian at 50 meters from home. But the Belgian was not yet out, and Arend won by a close margin only.

The last semi-final was composed of Grogna, Ferrari and Jacquelin. The latter was, of course, frantically applauded, and after he had won with seeming ease the crowd went wild.

The three winners representing France, Germany and Denmark lined up for the final. Jacquelin led the first lap and Arend the second. At the bell the order was the same, and Arend began to move a little swifter. Suddenly at the 300 meters mark Jacquelin made his usual jump, but his competitors, who had ex-

CYCLE SPORT AND TRADE

pected the trick, did not lose an inch, Ellegaard even taking a small advantage. Coming out of the last turn the three men were almost on the same line and for over 150 meters we had the most interesting and finely disputed race that could be wished. In a splendid effort the German took half a wheel and then, inch by inch, gained until the post was reached and he had won, by a full length, the most coveted race by all European riders, not only because the winner receives 8,000 francs (\$1,600), but because he receives the tricolor "echarpe" of the city of Paris and an art object from the French president. Ellegaard was second and received \$400, while Jacquelin had to be content with \$200 and third place.

The winner was well applauded; not so cheerfully, however, as would have been Jacquelin, and was presented to the minister, who said, laughing: "Well, it is only right that a German should have won in Paris when a Frenchman won in Berlin."

Arend was so glad and excited that he could not utter a word.

Another big event was the hour race, with 2,000 francs to the winner, in which your countryman, Charley Miller, took part. He was in good condition, but having only a single bicycile and a single tandem for pacing, it was really a pity for the American to start. Tire punctures and some incidents to his pacing machine happened every once in awhile, but he managed to get second place and \$200. Bouhours, Huret, Bauge and Bertrand were the other starters. The Norman made a wonderful race, passing and re-passing every one and breaking several records. Had it not been for some mis-happenings to his tandems he would have broken Stinson's record. Twenty kilometers were covered in the fast time of 18:11 1-5, as against 18:33 4-5 former time, and thirty kilometers in 27:33 1-5, as against 27:57 2-5. In the hour Bouhours covered 63 kilom. 770 meters, and Miller 56 kilom.

The amateur grand prize was won by Maitrot, from Legrain and Brusoni.

MS.

Stinson May Go Abroad

In a 15-mile race at Madison Square Garden, Monday night, Stinson simply galloped away from Nelson, who was never able to make a dangerous showing. According to reports from the east a trip to Europe was depending on the issue. M. Edouard LeMaire, who is in New York to book attractions for one of the Paris tracks, had been undecided, up to that time, which of the pair to select. Stinson's hour record having just been beaten in Europe he would doubtless find it profitable to make the trip and regain from the present holder the honors he has lost.

MS.

American Defeated in Europe

New York, July 15.—F. J. Denny, the authorized American amateur representative at the international championships, made a fine showing, though he did not win. Cables received from him last week stated that he had qualified in the trials and semi-finals for yesterday's final. Today Chairman Batchelder received a cable from him saying he was beaten yesterday and giving no further particulars. The championship race was run unpaced, foreign style.

MS.

Golden Wheel Race

Boston, Mass., July 12.—Breaking records from 40 minutes to two hours inclusive, Jimmy Moran won the golden wheel six-day race at Charles River park to-night, scoring in the two hours of riding the hitherto untouched distance of 74 miles 1,172 yards. Every man in the race broke the record of last year's golden wheel race. Total score, six days: Moran, 416 miles 1,040 yards; Stinson, 411 miles 452 yards; Champion, 400 miles 45 yards; Nelson, 393 miles 1,655 yards. Moran, as usual, rode an Orient.





FROM THE FOUR WINDS

Chief Kack-kack, one of the descendants of the original tribe of Pottawatomie Indians, who have an idea that Chicago is infringing their rights in the occupation of some parts of the lake front, was probably the first Indian who ever rode in an automobile. Edwin F. Brown, of Chicago, who was one of the earliest builders of automobiles in America, was the chief's host.

The last week in September, 1899, there was a street fair at Emporia, Kan. It was promoted by the best people in town



and, as a favor to his friend, William Allen White, the well-known author, Mr. Brown took down an automobile of his own manufacture, for the edification of the good people of Kansas, to whom it was an absolute novelty.

One day while Mr. Brown was there the chief sent a man to ask for the privilege of a ride in the vehicle. An appointment was made for the next day—September 28, 1899—at one o'clock. Promptly at noon the chief was there, accompanied by a squaw and one of the sub-chiefs. He

waited the full hour without once changing his position.

When Mr. Brown arrived he found his guest arrayed in full war paint, a mass of beads, feathers and paint from head to foot. He had made an extra effort to array himself in his most gorgeous apparel in honor of the occasion. He mounted the seat alongside the operator, who proceeded to have fun with him, though he has not yet made up his mind that the joke wasn't on him.

Brown tried all the well-known tricks, running the vehicle up to the curb and under wagons and applying the brake so as to bring the machine to an almost instantaneous standstill, etc., but the chief refused to be disturbed even to the extent of a wink. He sat bolt upright throughout the performance and the operator was bound to admit that the Indian was the most imperturbable person with whom he had ever had any experience.

After the ceremony the squaw, who had evidently taken a lesson from an interpreter for the occasion, said something like this:

"Mr. Brown—we pleased—much—thanks—good ride." To each syllable of which the chief nodded acquiescence, though it is doubtful whether he understood a word of it. The chief was between 75 and 80 years of age at the time of this occurrence.

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Preparations for Big Run

New York, July 15.—Walter H. Stearns, the expert employed by the Buffalo run committee of the A. C. A., has returned from a trip over part of the course beyond Albany, having been engaged in making arrangements for the accommodation of the chauffeurs over that stage

FROM THE FOUR WINDS.

of the great run. Mr. Stearns will start to-morrow over the course between here and Albany, checking distances and measuring grades with odometer and gradometer.

Secretary Butler hopes to get at least 25 members, which is a quorum, to run into town for the special meeting of the A. C. A. on Wednesday to consider some amendments to the constitution and the federation of automobile clubs scheme.

R. E. Jarrige, of the A. C. A. sign-post committee, has ridden over the Buffalo run course to Albany and set the places for the posts, which he expects will be erected along the whole line by the middle of August. The posts for the New York-Bridgeport route have been shipped and should be in position this week. The A. C. A. has contributed \$250 to the sign-post fund and several other clubs have given \$100 each. Manufacturers have also made donations, prominent among them being the Electric Vehicle Co., the Locomobile Co. of America, the Mobile Co. of America and the De Dion-Bouton Motorette Co.

A meeting of the executive committee of the Manufacturers' Association was called for July 3, but failed of a quorum.



American Vehicles in France

Frenchmen, as a class, are not greatly impressed by American automobiles as at present made. Here is a quotation from a French expert which indicates their beliefs:

"American vehicles are getting a strong hold among the English as well as some of the French and German aristocrats. The vehicles are sold at a good price and the profit must be very satisfactory. However, I predict that no sales on a large scale will be made until the Americans change their vehicles in some important parts. The principal objection is that they are constructed too lightly. They may be strong, just like your buggies, but people in general have no confidence. Your vehicles are superb for boulevard and park work—little promenades—but I think they could not stand a trip to Lille, Brussels or Bordeaux. The wheels are certainly not strong enough for such

journeys. Another important point is the motor. I know of few American vehicles, steam or electric, which have over six horsepower motors, while the smallest ones used here are eight horsepower, while the 12 horsepower vehicles are mostly in demand. If some of your makers would come over here and inspect some of the factories like that of Darracq, Renault and Peugeot, they would no doubt get the right idea. The best way for them to find out that we, over here, are right is to organize some road race of 150 or 200 miles and they will see where they land on their fine roads."



Mr. Eddy Asked to Resign

The members of the Chicago Automobile Club met last Thursday with blood in their eyes, and their doings have crept into the daily papers. The announcement of the meeting had advised the members that important matters connected with the officers of the club would be discussed. Dissatisfaction has long existed over the failure of Arthur J. Eddy to properly perform his duties as president. He has been at but one run this season and at but one meeting. For some reason or other the storm gathered quickly during the last 10 days, and by an unanimous vote the members instructed Secretary Brinkerhoff to advise the president that it was their will that he attend to the duties of the presidency or resign. That his resignation may be tendered seemed to be the general desire. The members are aware that, despite his inattention to the affairs of the club, the president has made good use of his position when visiting the east and are disposed to resent that use of the office. F. C. Donald, vice-president; and one of the most popular men in the club, will doubtless be elected Mr. Eddy's successor.



The Latest Park Rules

The following rules have been adopted by the commissioners of Forest Park, Springfield, Mass.:

Conductors of automobiles must be skilled in the management of such vehicles.

Conductors of automobiles must present this permit for inspection whenever re-

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quested by a park officer or any other employee of the park.

No automobile shall be run at a rate of speed faster than six miles per hour.

When horses become frightened or restive at the approach of an automobile the conductor shall immediately bring it to a full stop.

Conductors of automobiles must not sound the gong or bell except at the intersection of drives.

In case of an accident caused by a horse becoming frightened at the approach of an automobile, the conductor shall immediately report the same to the superintendent of parks.

Success Despite the Cold

There recently appeared in Winnipeg E. Janne de Lamare, said to be the first man to travel through the Klondike region by automobile. To a reporter he said: "Accompanied by R. Merville, I went from Lake Bennett to the Thirty Mile river, a distance of about 500 miles, on the automobile. At the latter point we found the ice beginning to break up, so we returned in an easterly direction for Atlin, which place we were not long in reaching."

"Do you consider the automobile a success for such a country as the Klondike?"

"There is no doubt of it. It went splendidly over the ice. We were often able to cover 60 miles an hour, and I think it would be well within bounds to say that on the average we went at the rate of 40 miles an hour over the lakes."

An Automobile House

For the last week a house on wheels has haunted Wabash avenue, Chicago. It is now at Sixteenth street, having occupied several days in proceeding a mile or so. It is an automobile affair, belonging to George Washington, of 481 Wabash avenue.

It is propelled by a 40-horsepower gasoline motor, and is intended for a home for its owner and his wife during their wanderings about the country. An old street car has been rebuilt for the body of the house, to which are added an observation and operating platform at the

front end, surrounded by large windows, and a porch in the rear. The machinery is mounted on a heavy steel frame, the whole weighing about four tons.

Automobile Ambulances

Further information has been received relative to the use of automobiles for ambulance service during the late hot spell in the east. The Pennsylvania Automobile Co. has placed an ambulance at the disposal of the Pennsylvania Hospital at Philadelphia. The vehicle is said to have been built two years ago and to be the first of its kind. The North American newspaper also placed its delivery wagon in service. It was used by the officials of the Hahnemann Hospital. The doctors declared that it beat any horse they ever saw, got around faster and ran with less jar to the patient.

Minneapolis assessors have placed a valuation of \$500 on steam vehicles. One of the owners appeared before the committee a few days ago and complained that the valuation was too high in proportion to the value placed on other property. The committee promised to give the matter consideration.

Another wonderful performance by the Leitner battery is reported from England, this time in the hands of an American. This gentleman reports that he made a journey of 94½ miles without any attention to the batteries. He is having a battery made and will have it shipped to New York.

The St. Louis Automobile Club has been organized and the following officers elected: E. Volkening, secretary of the Gus V. Brecht Automobile Co., president; O. L. Halsey, manager of the Missouri Automobile Co., vice-president, and John Ring, secretary.

Gordon P. Paine and William Keyser, Jr., of Baltimore, have established an automobile record between Baltimore and Bedford Springs, Pa., 150 miles, having covered the distance in 13 hours and 35 minutes.

Abel Davis, of Watertown, N. Y., said to be 92 years old, has bought and learned to operate a steam vehicle.

INFORMATION FOR BUYERS

The Buffalo Automobile Exchange occupies desirable storage and repair quarters at 320 Franklin street, and is presided over by the well-known mechanical superintendent, John J. Gibson, who has had an all round experience in automobile work and was until recently superintendent of the Kensington Automobile Co. The exchange is prepared to take charge of automobiles for Pan-American visitors and will store them and keep them in repair. Mr. Gibson has sold several new and second-hand vehicles the last few weeks and is open for an agency for one or more makes as well as for supplies.

Columbia Electric Tonneau

The tonneau form of body has lately made such rapid strides in popularity that it might almost be termed a fad. It is, however, without question an excellent pattern for a motor vehicle, and was designed with the requirements of a motor-driven vehicle in view. It also disposes of the "horseless carriage" idea and avoids that appearance of a stranded vehicle in need of a horse. It has been most freely adopted, however, by makers

of gasoline carriages and it is probable that the Electric Vehicle Co. is the first to adopt it for an electric.

The standard type, as built by this company, is furnished with an operator's seat comfortably accommodating two people, and a tonneau body with accommodation for two additional passengers. The tonneau body is removable and in its place may be substituted a surrey seat, accommodating two passengers, or a rumble seat for an attendant; or the rear space may be fitted with a hamper or left vacant to hold luggage.

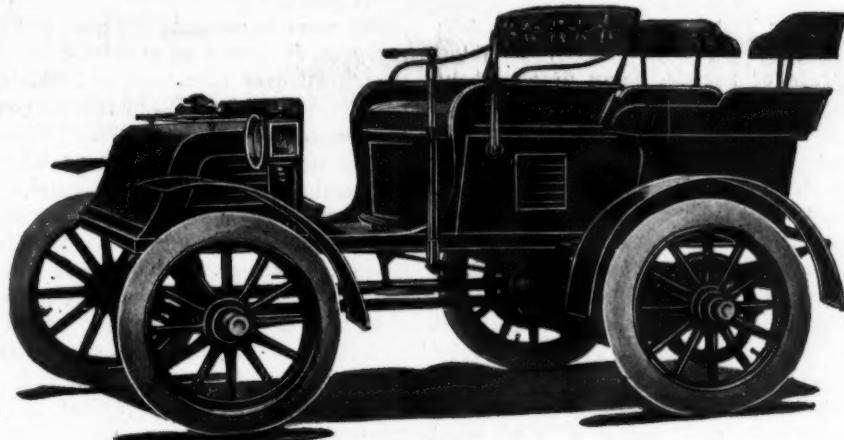
The vehicle has a double motor equipment. The controller handle and steering lever are at the left. The controller gives three speeds forward and two backward. The batteries are in two groups, the weight being distributed between the front and rear axles. The standard equipment includes side lamps, electric alarm gongs, fenders and water-proof aprons. There is a compartment especially designed for carrying tools, a full complement of which is provided.

The carriage is fitted with wood wheels and 3½-inch pneumatic tires. The maximum speed is 14 miles an hour and the mileage capacity 40 miles per charge.



COLUMBIA ELECTRIC TONNEAU.

INFORMATION FOR BUYERS.



COLUMBIA CHIEF'S WAGON.

There is also a modification of this pattern, which the manufacturers have named the Chief's Wagon, as it is especially designed for police and fire department chiefs, electric light and trolley inspectors and requirements of a similar nature. It has a detachable box in the rear for tools and supplies. The normal rates of speed are four, seven and 15 miles per hour. There is a special switch whereby the speed may be increased to 20 miles when desired. The wagon is fitted with a red head-light and an 11-inch gong and is otherwise especially equipped for the purposes above named.



St. Louis Trade Reports

St. Louis, Mo., July 15.—While this city plays an important part in the automobile industry, according to newspaper accounts, the actual number of machines used and the volume of business transacted is comparatively small, the trade being backward for numerous reasons. The activity of the supply houses speaks well for the future, but as yet their products have not been brought to a state of completeness, such as have those of some of the eastern concerns who have been much longer in the field.

J. H. Neustadt & Co. will be heard from in a short while and will cut a big figure in the parts trade. Mr. Neustadt is manufacturing all his own parts and is preparing for a heavy campaign, getting up a catalogue on a much more elaborate basis than his former one and in-

tends to push the business for all it is worth. He is convinced it is the greatest the country holds forth to the investor to-day. He has enlarged his plant and finds his space, even with recent additions, too small. His line comprises running gears, hubs, wheels, gears of the differential and transmission type, and, in fact, everything to make a steam vehicle. While he has devoted little attention so far to gasoline construction, he will shortly look after all classes of customers. The P. J. Dasey Co., 160 Washington street, Chicago, is his Chicago representative.

The Van Nort Mfg. Co. has paid little attention to the automobile motor trade, its business being mostly in stationary and marine motors of the four-cycle type. Mr. Van Nort states that he is going after automobile trade shortly, but is not ready to say just what he intends doing.

The International Motor Co. is producing a line that will win favor as soon as the trade becomes acquainted with it. The motors are made in two sizes, eight and 15 horsepower. The motors are of the two-cylinder, balanced type, and run at 500 revolutions per minute, although each is capable of higher speed and greater power.

The company is just completing a contract to apply engines for a compressed air cleaning apparatus which is carried around in a large van. The 15 horsepower engine operates with less vibration than any other it has been the privilege of the writer to examine. A large air

INFORMATION FOR BUYERS.

compressor and tank are also carried in the wagon, the whole outfit, weighing hundreds of pounds, being drawn about from place to place by horses. The engines work continuously 10 hours at a stretch.

The International company has an automobile constructed in which an eight horsepower motor is used, the driving being accomplished by a simpler friction pulley that is found on many rigs using that form of drive. The motor has a governor that regulates the vapor, thereby keeping the speed of the motor the same at all times. This feature has been accounted valueless by many gasoline men, but this company gets good service from the motor as equipped and see no reason for changing.

The company has contracts for a number of these engines and will therefore be retarded in placing machines on the open market, but the manager states that inside of a few weeks he hopes the company can enter the automobile trade

The St. Louis Motor Carriage Co. is getting out carriages already contracted for, but has made many changes from the design used last season. All the old parts of the old-style rigs have been disposed of and the company has a complete new stock. The motors are single cylinders, where the weight of the vehicle is moderate, but in the heavy types, such as the piano wagon, van and the bus, carrying 25 persons, all late productions, the motors are double-cylindered. A feature of all vehicles produced by this concern is that the running gears are all made on an equalizing plan that eliminates danger of the machine being sprung by excessive strains. While the motor and gearing are all carried in the body framework and chain drive is used, the chain is always kept at the same tension by movable brace rods running from the axle to which the differential is attached to the framework, exactly in line with the engine or driving shaft, thereby allowing the motor to rise and fall with the action of the springs. The front axle is also attached to the same movable brace in such manner that free action of the springs is obtained, yet rigidity is retained.

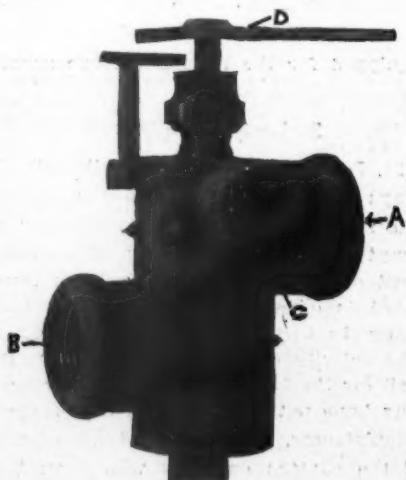
The Scott Automobile Co. has "This will carry you" posted and painted on billboards all over town and is obtaining a good share of the trade in this section on its handsome electric vehicles. The factory is new from start to finish and the equipment is of the best. To further advance business it is the intention of the company to take up the manufacture of parts and fittings for steam and gasoline vehicles. This will not be done, however, until late in the summer or fall, as the factory is rushed with orders already in hand.

The Western Electric Supply Co. is figuring on taking up a line of supplies, but will first make a closer investigation.



Some of Dyke's Specialties

The illustration shows a mixing device offered to the trade by A. L. Dyke, of St. Louis. It is made in all sizes necessary to use on engines from one to 15 horsepower. Mr. Dyke has had on the market for a long time a float-feed carburetor which, he asserts, was the first offered in this country and still believes it has many advantages over any mixer or vaporizer.



but, since the demand exists, he offers the cheaper device.

Mr. Dyke also offers a jump-spark coil which he describes as up-to-date in all respects. The dimensions over all are $3\frac{3}{4} \times 3\frac{3}{4} \times 5\frac{1}{2}$. The vibrator is enclosed in the case and never needs adjustment. The

INFORMATION FOR BUYERS.

advantages claimed are, no exposed working parts, light weight, efficiency and a good spark.

The Dyke spark plug is made in such a manner that the points will not become carbonated and short circuit readily. All these articles are guaranteed by the manufacturer. The prices are attractive. Mr. Dyke also supplies parts for building gasoline automobiles from single passenger rigs to trucks. He carries a full line of automobile supplies.

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Pierce at the Pan-American

One of the most interesting exhibits at Buffalo is "the study of vibration," which is a part of the G. N. Pierce Co. bicycle display. The Pierce exhibit is in the eastern end of the big structure close to the entrance in the northeast pavilion. The study in vibration is in the form of a big picture. The picture shows the automatic figures of two wheelmen. Both are pedalling rapidly down a country thoroughfare. One is mounted on an old-style rigid frame cycle and the other on the Pierce cushion frame Pan-American Special. The first rider appears to be suffering a fit of ague, so severe are the vibrations caused by the unevenness

of the road, while the second glides along serenely and smoothly. The whole picture is decidedly realistic and as a method of illustrating the advantage of the cushion frame over the old-style rigid frame is about as effective as could be imagined. The scenery back of the riders moves in a constantly changing procession, giving just the motion effect that is needed. The automata are life-size and weight each about 160 pounds.

Outside of that interesting feature there is a handsome display of the different types of the Pierce Pan-American Special which it would profit any bicycle enthusiast to study. The new Pan-American Special is an example of the highest type of the modern bicycle. It is equipped with cushion frame, bevel gear, center driven chainless action, with hub coaster brake. The Pierce exhibit is one among the many made by local concerns that is worthy of study.

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Buffalo Motors Please Buyers

The Buffalo Gasoline Motor Co. is doing famously with its four cylinder motors, both secondary and for vehicle purposes. Its marine motor, Secretary Snyder says, is giving the best of satisfaction



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and he shows a letter from the well-known yachtsman, Dr. T. S. Philips, of Buffalo, who is spending the season at Alexandria Bay, N. Y., who wrote the company as follows: "Engine is in and turns up beautifully. All are crazy over it and predict a general dumping overboard of all others." The company is also making splendid headway with its transmission gear. Anthony G. New, of London, is at present at the factory turning out some of his variable gears for the Buffalo Gasolene Motor Co.'s purposes. Among the recent buyers are several eastern vehicle makers. A man from the neighborhood of Philadelphia came along and left an order for 25, after experimenting with some others.



Searchmonts for the Test

The Searchmont Motor Co. is constructing three machines for the New York to Buffalo run. These will be practically the same as the standard 12 horsepower vehicles so far as power is concerned, but the tank capacity, lubricating facilities, etc., will be greatly increased in order to allow them to travel the roughest kinds of roads without replenishing water or gasoline for 12 hours.

Every possible care is being taken to see that every detail of the construction is perfect, so that the chance of accident may be reduced to a minimum. It will be remembered that the Searchmont system of duplication of parts makes very rapid substitution of vital parts of the engine and transmission gear possible, should occasion arise. All important working parts are easily accessible and are carried in duplicate in the tool chest. This is the case with all of the standard vehicles, and may be a feature of extreme value in a long endurance test.



Engines on All Wheels

The Steel Ball Co., of Chicago, has announced its intention to enter the motor vehicle industry as a manufacturer of steam vehicles. Its vehicles will be constructed under license from C. C. Hill, patentee and also president and general manager of the company. The company's attention will be particularly directed to

the manufacture of freight trucks and vehicles for commercial purposes. It will also, however, build a light runabout.

The principal mechanical feature of the heavy vehicles is that the driving is by direct connection to all four wheels. The engines employed are designed to be used separately, one for each wheel, and need no foundation other than the axle. No detailed description of this engine is available at present. The company states that it is capable of giving six horsepower on compound, or 12 horsepower on high pressure. It is contained in a steel case, $6\frac{1}{2} \times 14 \times 11\frac{1}{2}$ inches and weighs less than 35 pounds. It is also stated that such parts as stuffing boxes, eccentrics, links, connecting rods, slide valves and steam chests are entirely eliminated.

In conjunction with the engine the company has a specially-designed condenser which it claims will condense all the steam that passes through the engine, thus doing away with the large water tank usually carried.

In the runabout, as designed, there are but two engines, the drive being by the rear wheels only. It is the intention of the company to construct a line of vehicles ranging from the runabout to an eight ton truck.



The Midget Parcel Carrier

The Midget Mfg. Co., of Buffalo, is having a splendid run with its Midget parcel carrier. The little carrier can be snapped on and off the handlebar in a jiffy and is of the finest spring steel and plated. It fits any bar, has no straps, buckles or joints, and will not rattle or shake off. It can be carried in the vest pocket when not in use, but few care to take it off, as it does not detract from the appearance of the bicycle. The price, 10 cents, places it within the reach of everybody. It is a sundry that is often bought because of its extreme cheapness, and as everybody needs such an article at some time or other, the Midget was designed and made for the millions. It is mounted attractively on show cards, and if placed where it can be seen the Midget is its own salesman. Geo. E. Johannot, secretary of the company, gave a practical demonstration recently by filling a show window in Buf-

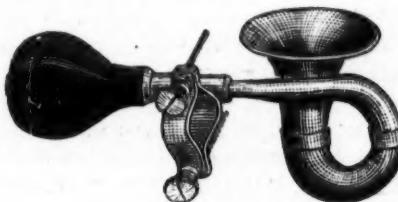
INFORMATION FOR BUYERS.

falo and employing a demonstrator. The result was the sale of a gross inside of three days. Mr. Johannot believes that the same can be done in any city. The Champion Cycle Co., of Brooklyn, recently put these parcel carriers in stock and did so well with them that it is now soliciting the trade in the metropolitan district. The Midget Mfg. Co. will be glad to quote prices and send a sample card board for the trade's inspection.



Some of Miller's Sundries

Chas. E. Miller, of 97 Reade street, New York, is marketing a new water glass made from fine imported German glass and very strong and durable. Inside is



a little glass ball or bulb, which floats, gives the exact height of the water at all times and can be seen at a distance. The balls are furnished in two colors, ivory white and dark blue, or they could be made any color desired.

Mr. Miller has received an importation of French automobile horns. They come in three sizes. The price of the small size is \$6, medium \$7 and large \$10. Mr. Miller has also received an importation of French leather automobile coats in sizes from 36 inches and larger.



The Clarkson Burner in Use

The first experience with the Clarkson kerosene burner, described last week, is reported by H. Brough, who says: "It was put to work under a Locomobile, where it maintained steam splendidly on a four-hours' run. Oil used, two and a half gallons; distance run, 49 miles. Second day's run, four hours; distance, 48 miles; oil used, 2½ gallons. Steam was kept up to 130 pounds pressure nearly all the time both days. On the third day, on lighting up, it was just 10 minutes before any steam was shown at open safety

valve, and 15 minutes before pressure was at 170 pounds. Car was taken for a short run, but steam pressure went down to 30 pounds in 20 minutes. Thinking there was something gone wrong with burner, it was taken off for examination and found right, but the bottom tube-plate was covered with a thin coat of soot; can this be prevented?"

A test of the Clarkson burner was made at the Locomobile factory over a year ago, but its stench alone was sufficient to prevent its adoption.



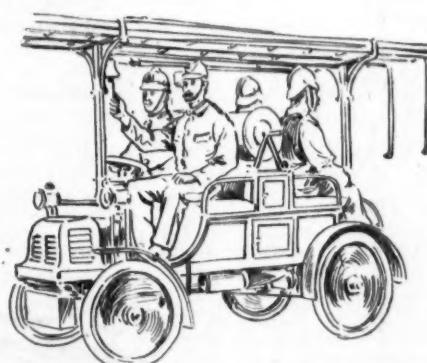
The Brown & Sharpe Shops

A handsome little booklet, entitled, "Here and There in Our Shops," has been issued by the Brown & Sharpe Mfg. Co., of Providence, R. I., and is being distributed at the Pan-American. It is handsomely illustrated, in two colors, and shows views of parts of the shop and some of the special machines employed. The text is devoted to a brief history of the company since its formation, in 1853.



To Save German Lives

The Adler Bicycle and Automobile Co., of Frankfort, Germany, has completed a vehicle for carrying the big ladder of a fire brigade. The motor may run at an average speed of from 12 to 20 miles an hour. The ladder is in three pieces, and, besides, there are ropes and many other accessories. The reader who may be dis-

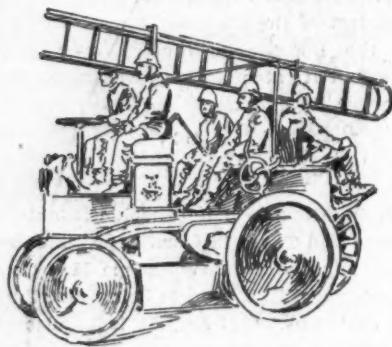


posed to smile at the device depicted will please bear in mind the fact that European fire departments, without a single

INFORMATION FOR BUYERS.

exception, are so far behind those of this country that no comparison is possible. Their energy is devoted rather to display than to efficiency.

Paris has also introduced an electrically propelled engine, which is shown in the second illustration. The impression prevails abroad that America is backward



in these matters, while as a matter of fact she is ahead of all other countries of the world. Strangely, however, the makers of automobile fire engines seem indisposed to furnish any details concerning them.

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James Reber, who formerly, with his father, owned the Stormer Bicycle Works at Reading, Pa., which was sold to the American Bicycle Co., has purchased three acres of land in West Reading and will build a large factory for automobile making purposes. Mr. Reber will make a gasoline vehicle and will undoubtedly be as important a factor in the business as he was for years in the bicycle trade.

We herewith hand you remittance for another year's subscription. Whilst writing we take the opportunity of expressing our satisfaction with the Age, to which we look as an authority.

Your latest production is certainly a fine one, and we only wish the Australian commonwealth had a similar journal.—The Dunlop Pneumatic Tyre Co. of Australia, Limited, Melbourne.

Another wonderful story about a battery comes from Paris, by cable. S. North, a Parisian inventor, is reported to have made "an automatic generator of electricity which takes up little space and makes electricity as the automobile speeds on its way."

The Dayton Motor Vehicle Co., in its advertisement, calls particular attention to its running gear. It has been commented on with favor and will be pushed by its maker. The company has just produced a new burner, which will be described shortly.

Samuel Snell, who organized the Snell Cycle Fittings Co., but whose home is now in England, was in this country on business a few days ago and made a trip to Toledo especially to see a number of old friends. He is reported to be prospering.

C. E. Shook, a cycle dealer at Waukon, Ia., is building a motor bicycle. He made his own patterns and got the castings made at Dubuque.

—The Marquette Electric Automobile Co., recently organized, is said to be seeking a location for a factory somewhere along the river front at Detroit.

We were out on a motor cycle run and lost our copy of the Age. Can't do without it. Please send another copy.—Kelnard Bros., Phoenixville, Pa.

I find the Age good company and cannot do without it.—J. E. Ruby, Jacksonville, Fla.

Ed Gilbert, of Casselton, N. D., has bought the cycle business of A. M. Crawford.



IN THE WORLD OF INVENTION

Letters patent No. 677,897, dated July 9, 1901, to Louis B. Smyser, of Elizabeth, N. J., assignor to F. E. Canda, of New York.

This device is a speed changing gear for motor vehicles wherein the notable feature lies in the form of the clutches employed in connection with the various gears. A side elevation of this clutch is shown in Fig. 1, and an axial section, partly in elevation, is shown in Fig. 2. The clamping portion of this clutch is a ring opened at one side and fitted within a flange in which it operates. A lever shown in Fig. 1 is so arranged that when the actuating arm is moved outward this ring is expanded, thus acting as a clutch on the internal face of the flange. For moving this actuating lever a sleeve having conical ends is slidably attached to the axle in such manner that when the sleeve is moved toward the clutch the actuating arm thereof is forced outward, thus binding the clutch members together. A modification similar in nature is also shown, except that the operating band is applied externally, and by action of the lever is constricted upon the outer face of a drum on which it operates.

No. 677,875, dated July 9, 1901, to George A. Macker, of Westboro, Mass., assignor to the Locomobile Co. of America.

A shield or casing for a steam engine of a design particularly adapted for use in the Locomobile. We are informed, however, that that company has already ceased its use.

No. 678,048, dated July 9, 1901, to Charles S. Smith, of Milwaukee, Wis.

The steering wheel hub covered is clearly shown in Fig. 10, which is a vertical axial section of the hub and shows the axle yoke and connecting lever in elevation. It will be readily seen that the object is to provide a steering connection wherein the pivot is in a plane with the center of the steering wheel.

No. 678,144, dated July 9, 1901, to Robert W. Thompson, of Chicago, assignor to Thomas B. Jeffery.

The object is to provide a steering mechanism for automobiles wherein the pivot of the steering connection lies in the plane of the center of the wheel and to provide certain levers in connection whereby the

wheels, in turning, will be given the proper angle. The details of construction of the hub mechanism is shown in Fig. 5. It does not differ materially from several other devices of a similar nature. The system of levers for one end of the axle is shown in Fig. 6. A lug A is an integral part of the cup shaped member of the stub axle which carries the steering pivots B. A lever C is attached to the central portion of the axle, to one end of which is attached the connecting link from the hand lever. At the other end is pivoted the connecting link joining the two stub axles to give the wheels the proper angle in turning and also a short connecting link D, the other end of which is attached to the lug A. The system of connections at the other end of the axle is the same except that the end of the lever C, to which the connecting links F from the hand lever is attached, is omitted. A notable feature of this hub is the flanging of the inner portion to give steering room, still avoiding the heavy appearance of those of cylindrical form.

No. 677,854, dated July 9, 1901, to F. E. Canda, of New York, and Louis B. Smyser, of Elizabeth, N. J., Smyser assignor to Canda.

The object is to improve and simplify the driving gear of a motor vehicle, particularly that mechanism employed for varying the speed and reversing the direction of movement in such vehicles. Fig. 3 is a rear elevation and figure 4 is a plan of the device. Twin motors are used which are carried on the frames of the vehicle. On their crank shafts are pinions intermeshing with a common gear wheel mounted on a driving shaft, having bearings in the frame of the vehicle. Upon the driving shaft is a friction wheel, connected to said shaft by a spline. Opposite this wheel is an idler of equal diameter, which is mounted loosely on a horizontal shaft, supported by a bracket attached to the frame. Two corresponding friction disks are splined onto a sleeve, surrounding the axle of the driving wheels, and have some longitudinal movement thereon. These disks are pressed against the two friction wheels by springs. Both disks are provided with flanges, within which are mounted friction clutches.

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The supporting frame of the driving mechanism, that is to say the motor frame, consists essentially of a U shaped member supported upon ball bearings on the axle and having a cross member upon which the main portion of the frame the two motors are supported. Upon this supporting bar are mounted the shifting levers through which the friction clutches are operated by means of a hand lever. This lever is so mounted that when it occupies a central position both clutches are released and the vehicle remains stationary notwithstanding the operation of the engines. The regulation of speed is effected by moving the friction wheel toward or from the centers of the disks. To so move this wheel a rack intermeshing with a pinion mounted loosely on the axle sleeve is employed. This rack has an ordinary fork connection with the hub of the friction wheel. Arrangements are provided whereby the idler is moved in the same manner and to the same degree as the friction wheel. The actuation of these small friction wheels is also by means of a hand lever suitably placed and connected. The purpose of the idler is simply to keep the friction disks in parallel planes and thus prevent undue friction.

The running gear of the vehicle is also a part of the invention covered by this patent. The unique feature lies in there being

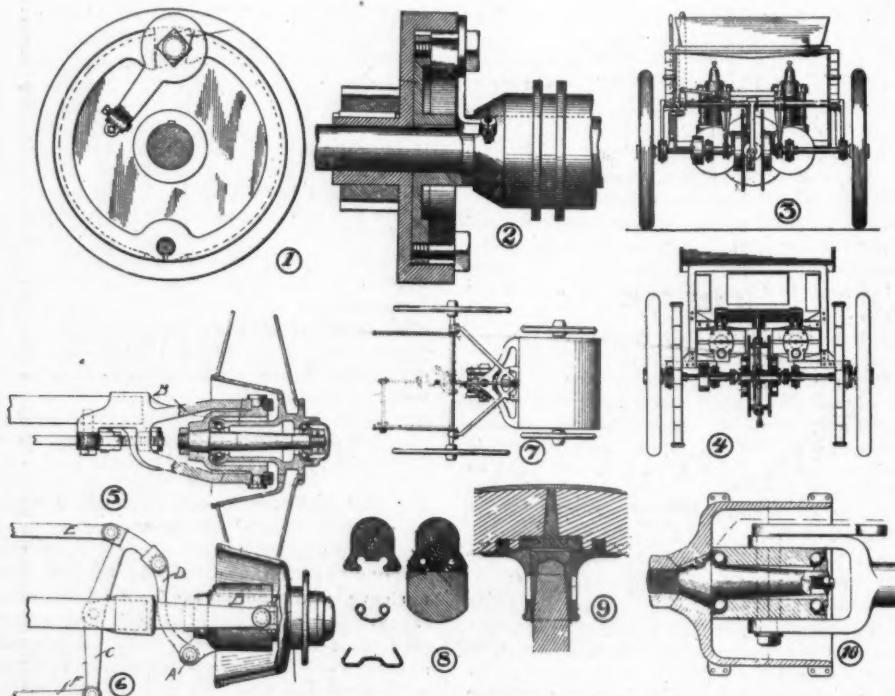
no reach independent of the body. The body of the vehicle is supported at the rear by springs resting upon the supporting bar. At the front the carriage body is supported by a single elliptical spring resting upon the front axle. The U shaped motor frame has a hinge connection to the floor of the carriage body which is, in turn, connected by links to the ends of the front axle. Because of the hinge connection between the motor frame and the body of the vehicle, a large portion of the weight of the driving mechanism is carried by the springs supporting the body.

No. 678,063, dated July 9, 1901, to Russel Thayer, of Philadelphia.

This covers a tractor for attaching to an ordinary vehicle, the only point being the method of attaching and steering. The steering is accomplished by means of two small wheels located close together in the rear of the tractor, a plan of which, in connection with the front section of the vehicle, is shown in Fig. 7. Four claims are allowed, none of which appear to be of particular value.

No. 678,122, dated July 9, 1901, to Lowell M. Maxham and Artemas B. Upham, of Boston.

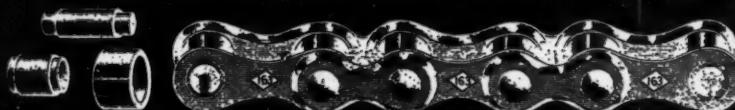
There seems to be a considerable number of aspiring inventors possessed of the idea that the proper way to govern a motor vehicle is by reins. This is a device of that



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Is Your Chain Satisfactory?

If not replace it with one of our No. 163 Roller Chains. They are stronger, will elongate less, and adapt themselves to a worn or dirty sprocket far better than any Solid Block Chain of the same size on the market.



Twin Roller 1-inch pitch, 5-16-inch or 3-8-inch wide, will fit sprocket cut for regular B. Block pattern.

THE AUTOMOBILE AND CYCLE PARTS CO.

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NO JOINTS
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Outwears
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THE GOODYEAR TIRE AND RUBBER CO.

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LARGEST TIRE MAKERS IN THE WORLD

WORLD OF INVENTIONS.

nature. A more or less complicated system of pulleys, levers and straps is employed whereby it is assumed that the apparatus, which is in the form of a tractor which may be attached to an ordinary vehicle, may be steered in the manner usual in driving a horse. By a pull on both lines at the same time a brake may be applied.

No. 677,867, dated July 9, 1901, to John W. Hawkins, of Cuyahoga Falls, O.

This relates to a method of attaching solid rubber tires. The tire has a special sectional form as shown in figure 8. Attached to the felloe of the wheel is a metal rim provided on each side with annular flanges forming on the wheel an annular channel for the reception of the tire. This rim also has an upward bend in the middle, forming an annular ridge. The tire, as described, is fastened to the rim by means of a band, preferably of sheet metal, having its edges turned or rolled into the form shown in the illustration. When it is desired to fasten the tire to a wheel the metal rim, forming the tire seat, is first attached. The metal band having the cylindrical edges is then seated in the channel on the inner surface of the tire with the convex portion of the band toward the base of the tire. The tire is then seated in the annular channel after which it is subjected to pressure from without which forces the center line of the band outward into the form shown in the section of the complete tire. This action securely locks the tire into the steel seat provided for it.

No. 678,025, dated July 9, 1901, to Gerrit V. Orton, of Monterey, Cal., assignor of one-twentieth to David Jacks, of the same place.

This relates to improvements in wheel attachments, whereby the tire and rim are held together without the use of bolts or similar binding device and whereby the spokes may be tightened and the felloes expanded whenever necessary. It consists essentially of a peripheral channel, formed on the inner side of the tire; a peripheral projection on the rim fitting said channel; a dowel-key whereby the alignment of the felloes is maintained and by which they are expanded; a seat for the spoke tenons and a jam-nut by means of which the spokes may be tightened. Fig. 9 shows a section of this device. The joints of the felloes forming the rim are left open for the insertion of the dowel and expansion keys. These keys are wedge shaped and are provided with a projecting base which is let into mortises in the contiguous ends of the felloes and form a dowel by which the felloes are held in line. This dowel

projection also offers a solid metal base for the saddle plates to rest upon. These saddles are held in place on the rim by means of lugs fitting corresponding recesses. Each saddle is made with a central hollow projection in which a ferrule is adapted to fit and which ferrule serves as a seat for the spoke tenon. These ferrules are provided with an exterior thread and are interiorly tapered to correspond with the taper of the spoke tenons. Upon these ferrules are interiorly threaded sleeves or nuts made with an outwardly beveled edge which abuts against the inwardly beveled shoulder of the projection on the saddle. By actuating these nuts the wheel is tightened and at the same time the nut is made self-locking by its compression against the ferrule and the saddle.

No. 677,983, dated July 9, 1901, to Edwin Hemstead, of Toronto, Canada.

The detachable tire covered by this patent does not differ materially from many of its predecessors which depend upon a series of studs or buttons for holding the edges of the tire together. In this particular device each edge of the outer casing is provided with a steel band, one of which is provided with a series of studs and the other with corresponding holes to receive them. The inventor states that this fastening is substantially the same as that used in fastening a ladies' corset and is the method he prefers, though modifications might be used.

No. 678,055, dated July 9, 1901, to George W. Southwick, of Franklin, Mass.

Of all the tire devices presented for some time this has about the slightest appearance of feasibility. In the first place the patent is stated to relate to the formation of a rigid, non-puncturable air chamber which is not inflatable. This air chamber is therefore the sustaining feature of the tire and is described as being made of wood in the form of an annular tube, or rather a pair of members semi-circular in section making up a tube, the division of which is on a line parallel to the axis of the wheel to which the tire is attached. This tube is bent into a circular form of the desired size, after which the rubber casing is applied. The device is hardly worthy of further comment.

No. 678,317, dated July 9, 1901, to Webber G. Kendall, of Providence, R. I.

This covers a modification of the tire described last week, covered by letters patent No. 677,415, to the same party. The modification consists merely in the form of the corrugations in the rubber fabric, of which the tire is made.

THE Locomotor Steam Carriage

IMMEDIATE DELIVERY



The following improvements will be appreciated by automobile purchasers: Low water alarm; dust case for chain; four bearing engine entirely enclosed running in oil; extra heavy side steer; either steam or hand auxiliary pump; air pressure pump; auxiliary throttle; stop for brake lever; double acting brake; feed water heater; electric illuminator for gauges and water glass; heavy frame; roller bearings on rear axle; 30-inch wheels; option on tires, etc., etc; Kelly Handle Bar generator attached to all vehicles without extra charge. Of the large number of our vehicles in daily use, not one has ever had the boiler scorched.

RUNABOUTS, STANHOPES, CONVERTIBLE TOURING CARTS,
DELIVERY WAGONS.

RECEIVERS BALDWIN AUTO. MFG. CO.,

Connellsville, Pa.

MISCELLANEOUS

Advertisements under this head 5 cents per word first insertion; 3 cents per word each insertion thereafter. Cash with order. Express orders, postoffice orders or stamps received.

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FOR SALE—Steam "Mobile" good order, \$550.
JOHN WILKINSON, Middletown, Ind. 1

FOR SALE—One Pattee Motor Cycle, new, right from factory and never used. Will sell for \$100.00 cash with order. F. O. B. here. 1
T. O. KILBURN, Spring Valley, Minn.

FOR SALE—25 brake h. p. engine (40 h. p. ind.) 4 Cycle engine for marine or stationary purposes, fully guaranteed throughout. ACME GASOLINE ENG. CO., 726 North Vandeventer Ave., St. Louis, Mo.

FOR SALE—The Automobile Storage and Repair Co., 57 West 66th St., New York, have new and second-hand steam, gasoline, and electric carriages constantly on hand and have always some special bargains.

CASTINGS

of the Bicycle Motor now being described in the Motor Age, full sized blue prints, carburetors, mufflers, spark coils, etc. for all size motors. Automobile, Tricycle, Marine and Stationary Gasoline Motors and Castings.

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D—

DIXON'S No. 635 GRAPHITE

is the best form of graphite for lubricating engine slides and cross-heads of steam motors, and for lubricating cylinders of both steam and gasoline motors

Joseph Dixon Crucible Co., Jersey City, N. J.

MODERN CYCLE REPAIRS

ONE DOLLAR TO CYCLE AGE
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FENDERS

We can quote a very interesting price on automobile fenders. Write us for

AUTOMOBILE SUPPLIES

Eastern Automobile & Supply Co.

67-71 Fountain Street, Providence, R. I.

Motor Age will be pleased to place any of its readers who want to buy anything in the automobile or cycle line in communication with reliable people who have the goods for sale. State your requirements fully.

A NATIONAL ASSOCIATION

Somebody intends to give the existing authorities a run for the control of automobile events in this country. Articles of incorporation of the League of American Automobilists, with principal office in New York, have been filed with the secretary of state. The league purposes to foster the automobile industry in the United States and Canada, to bring about a moderation in cost for its members in the purchase of automobiles, to maintain a club house in New York, to encourage the construction of good roads and to secure rational legislation regulating the use of automobiles. The directors are: William Herbert Smith, William G. Kinney and William J. Howey, of New York.

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The President's First Ride

President McKinley took his first public ride on an automobile last week at Canton, O. He was on the famous front porch, which is shady in the afternoon, when a party of friends wheeled up in front of the house in an automobile. The president was informally invited to join them, and just as informally he accepted. He ran into the house after his hat, seemingly as much pleased as a girl to get a buggy ride, and emerged with his head-gear of straw. He was asked to take a front seat, and all the streets of the city were traversed, and then the machine was turned into the rural districts. The ride consumed nearly three hours.

This was the first time that President McKinley had ever had a ride of this kind. He said that it had been his intention for months past to make a trial. He enjoyed it hugely.

Every once in a while during the fast spin that was taken the president would grab his hat and hold on to it tenaciously. The hat must have been just a little too large, but its distinguished wearer brought it back safely.

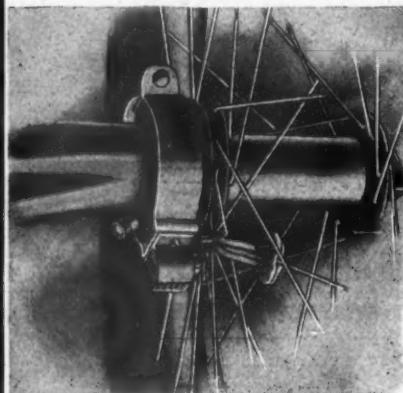
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S. L. Clayton, of Philadelphia, has just completed a tour of 1,275 miles through New York and New England. He was accompanied by his mother. His average was 40 miles a day.

When buying an Automobile see if it is equipped with a

Veeder Odometer

If it is you may feel reasonably certain that its manufacturer pays careful attention to detail and it is a guarantee that he is not exaggerating the efficiency of his motor power or over-estimating his fuel capacity.



Odometer with
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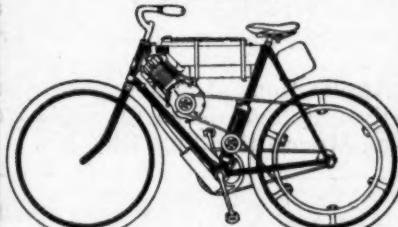
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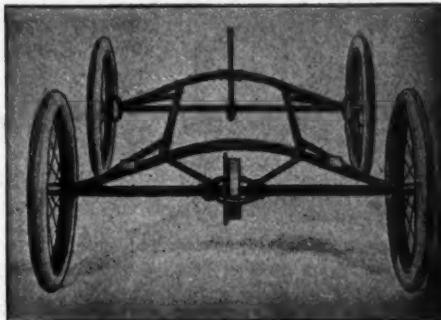


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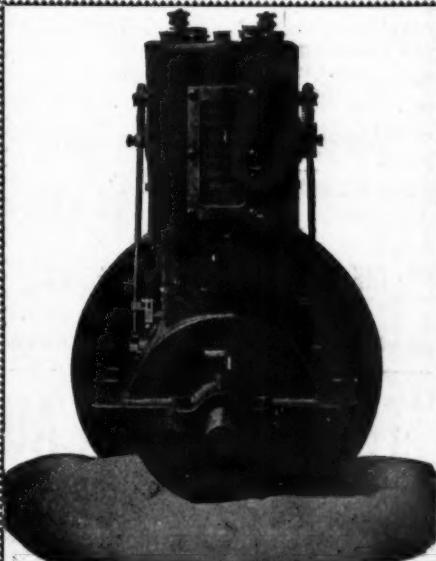
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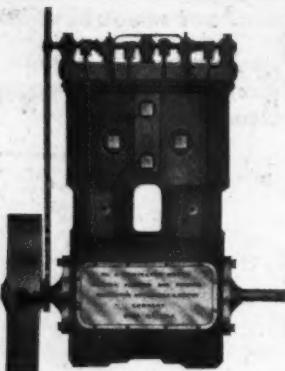
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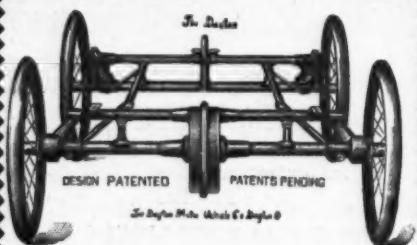
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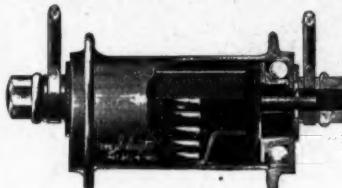
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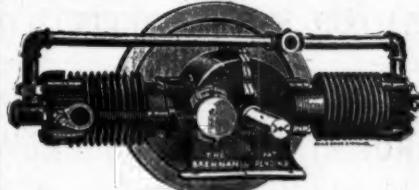
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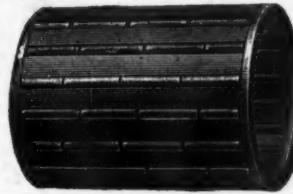
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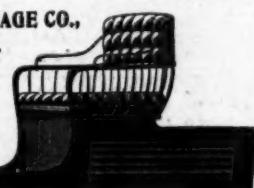
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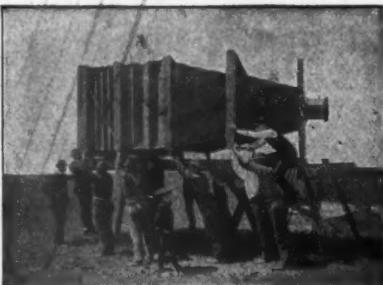
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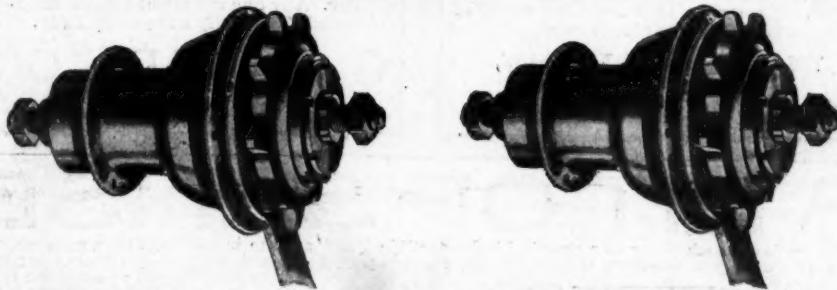
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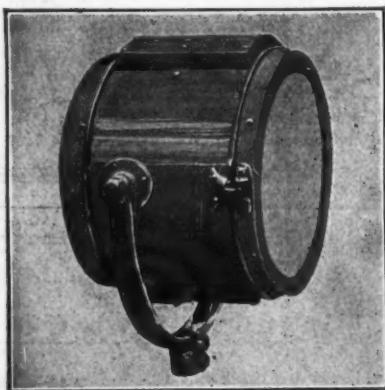
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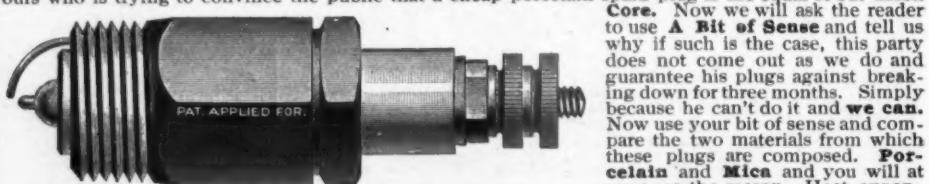
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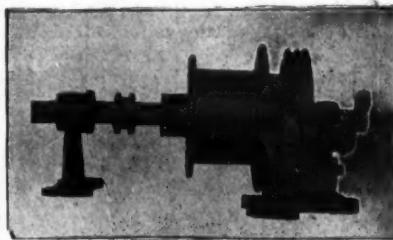
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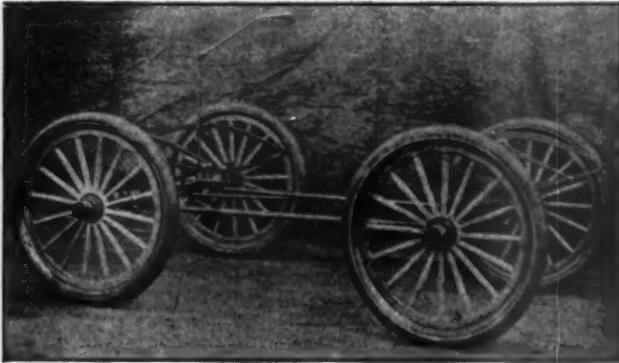
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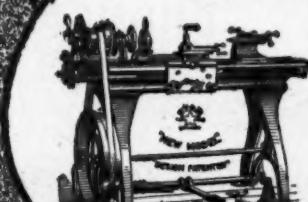


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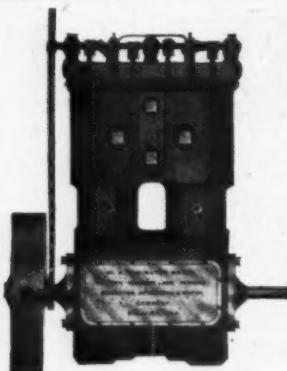
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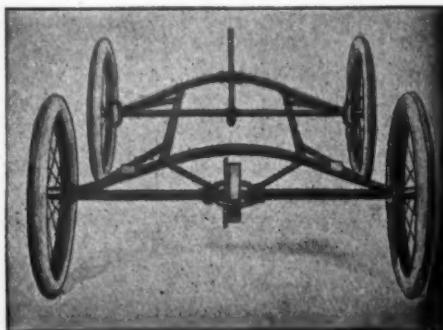
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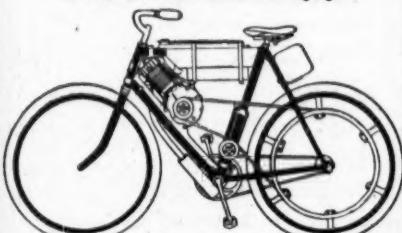
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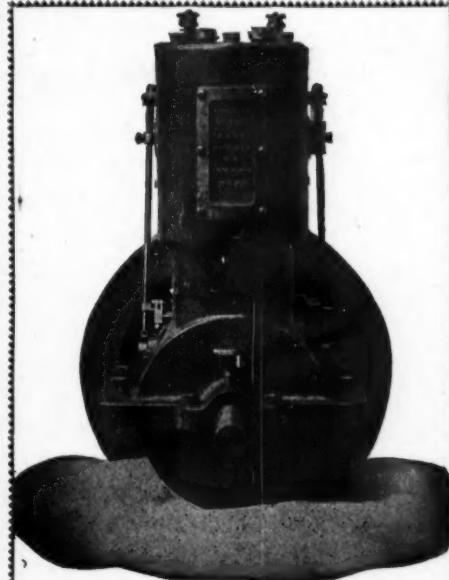


Mr. E. A. Stockton of Healdsburg, Cal., writes under date of June 27th as follows:—

"I have no hesitancy in saying that for real efficiency, coupled with moderate cost your motor has no equal in the West. Recently I had the pleasure of meeting Mr. Percy Young of Oakland as he was giving one of your AUTO-BIS an airing and the performance was very satisfactory. It is the perfect AUTO-BIKE. Light, simple, strong and full of good work that I am interested in and hope the time will soon come when I am lifted out of the realm of sport and see it settled down to the profitable business of time, labor and money saving; it is what is needed in this hustling age."

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Frames and Forks constructed of specially heavy seamless steel tubing. Complete Motors, Parts and Fittings supplied to the trade. :::: :::: ::::

WRITE FOR CATALOGUE



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THE WORD
“Dunlop”

IS NOT PUBLIC PROPERTY

The Pennsylvania Rubber Co. having put on the market an inner tube described as the “Dunlop,” The U. S. Circuit Court of the Western district of Pennsylvania has ordered—“That a perpetual injunction issue forthwith out of and under the seal of this Court forever restraining and enjoining the defendant, its officers, agents attorneys, servants and employees, and all persons operating under it or them, from using the name or word “Dunlop” or any colorable imitation thereof, as designating defendant’s goods in connection with the manufacture, sale, advertisement or offering for sale of pneumatic tires or their parts, or inner tubes for pneumatic tires, and from manufacturing, packing or shipping pneumatic tires or their parts, or inner tubes for pneumatic tires, having engraved, stamped or marked thereon or on the package containing the same, the word “Dunlop” or any colorable imitation thereof.”

Having received many complaints of the inferior quality of alleged Dunlop inner tubes, which upon investigation we found not to be of our manufacture, we would call the attention of the trade to the fact that all goods made by us bear our name. All others are fraudulent and we shall actively proceed against anyone making or using any form of alleged Dunlop pneumatic tires or parts of tires.

The American Dunlop Tire Co.
BELLEVILLE, N. J.